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THE ETIOLOGY OF INFECTIOUS HEPATITIS

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The modern concept of the virus etiology of infectious hepatitis is a product of the investigations of recent war years both abroad and in this country. This theory is in accord with at least three facts: (1) the consistent failure to identify any causative bacteria with this disease;[1] (2) the production of hepatitis in human volunteers by the administration of a filtrable agent,[2] and (3) the development in patients in the early stages of this disease of leukopenia (with lymphopenia and subsequent neutropenia) similar to that found in several other virus infections.[3]

Historically, infectious hepatitis is an old disease and one which has been long known in civilian and military life. Epidemics of what may probably be regarded as this disease were recorded during Napoleon's campaign in Africa and in the Civil War in this country, the Boer War in South Africa and in World Wars I and II. During World War I considerable effort was made to demonstrate an etiologic association between various strains of salmonellae and infectious hepatitis. It is now apparent that such an association probably represented the simultaneous occurrence of two diseases whose manner of spread, namely, the intestinal-oral route, was the same.[1] In addition the recognition of spirochetal jaundice and of its causative agent Leptospira icterohemorrhagiae[4] caused confusion, in that for many years the investigations of outbreaks of infectious jaundice were carried out largely with the concept of leptospiral etiology. Blumer[5] was among the first in this country to indicate that infectious hepatitis probably represented the epidemic form of catarrhal jaundice. It is only recently that this idea has been more widely accepted.

Infectious hepatitis may appear either sporadically or in large or small epidemics. Family outbreaks are not uncommon. In civilian life it is said to be primarily a disease of childhood, although its capacity to attack the young adult is attested by the magnitude of military epidemics. Clinically the disease is similar, as it appears in children and adults, although its course on the average is much severer in the latter group.

During the late war tens of thousands of cases of this disease occurred among troops in various parts of the world, and excellent clinical descriptions have been recorded. In addition considerable knowledge has accumulated concerning treatment and the use of certain tests of liver function in diagnosis and prognosis.[6] In the accompanying chart is described the course of disease of an adult patient with infectious hepatitis.

ETIOLOGIC AGENT

Actually little is known in regard to the etiologic agent. The lack of susceptible laboratory animals or adequate serologic tests, as well as failure to propagate the agent in embryonating eggs or tissue culture have made the problems more difficult. Up to the present the best source of information has been in the use of human volunteers, to whom it is possible to transmit the disease readily. In this manner certain facts have become known about the etiologic agent, the possible manner of spread of virus and the prevention of the disease. A few strains of infectious hepatitis virus have been obtained from different parts of the world, and the patterns of their behavior in man have been compared.

Numerous attempts to transmit the virus of infectious hepatitis to the common laboratory animals, including many rodents, many species of monkeys and even chimpanzees have failed.[7] Successful transmission of virus to pigs,[8] canaries[9] and embryonating eggs[10] has been

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This paper and the succeeding papers by Lieutenant Colonel Mallory, Drs. Kimball, Chapple and Sanes, Dr. Hoffbauer, Drs. Boles, Crew and Dunbar and Dr. Morrison are the concluding papers in a symposium on "Diseases of the Liver." The papers in this symposium by Dr. Weir, Dr. Osgood, Drs. Giansiracusa and Althausen, Dr. Capps, Captain Sborov and Dr. Barker, and Dr. Wilbur were published in THE JOURNAL last week.

1. Havens, W. P., Jr., and Wenner, H. A.: Infectious Hepatitis Complicated by Secondary Invasion with Salmonella, J. Clin. Investigation **25**: 45 (Jan.) 1946.

2. Havens, W. P., Jr.: Properties of the Etiologic Agent of Infectious Hepatitis, Proc. Soc. Exper. Biol. & Med. **58**: 203 (March) 1945.

3. Havens, W. P., Jr., and Marck, R. E.: The Leukocytic Response of Patients with Experimentally Induced Infectious Hepatitis, Am. J. M. Sc. **212**: 129 (Aug.) 1946.

4. Inada, R.; Ido, Y.; Hoki, R.; Kaweko, R., and Ito, H.: The Etiology, Mode of Infection and Specific Therapy of Weil's Disease (Spirochaetosis Icterohaemorrhagica), J. Exper. Med. **23**: 377 (March) 1916.

5. Blumer, G.: Infectious Jaundice in the United States, J. A. M. A. **81**: 353 (Aug. 4) 1923.

6. Barker, M. H.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in the Mediterranean Theater, J. A. M. A. **128**: 997 (Aug. 4) 1945; Chronic Hepatitis in the Mediterranean Theater A New Clinical Syndrome ibid. **129**: 653 (Nov. 3) 1945. Hoagland, C. L., and Shank, R. E.: Infectious Hepatitis, ibid. **130**: 615 (March 9) 1946.

7. van Rooyen, C. E., and Gordon, I.: Some Experimental Work on Infective Hepatitis in M. E. F., J. Roy. Army M. Corps **79**: 213 (Nov.) 1942. Hoyle, L.: A Note on Some Unsuccessful Attempts to Demonstrate a Virus in Infective Hepatitis, Medical Research Council, Monthly Bulletin of the Ministry of Health and Emergency Public Health Laboratory Service, Oct. 5, 1943, vol. 2, p. 99; abstracted, Bull. Hyg. **19**: 12 (Jan.) 1944. Havens, W. P., Jr., and Ward, R.: Failure to Infect Chimpanzees with the Virus of Infectious Hepatitis, Proc. Soc. Exper. Biol. & Med. **60**: 102 (Oct.) 1945.

8. Andersen, T. T., and Tulinius, S.: Etiology of Hepatitis Epidemica (Epidemic Jaundice), Acta med. Scandinav. **95**: 497, 1938.

9. Dresel, E. G.; Meding, G., and Weineck, E.: Ueber das Virus der Hepatitis epidemica, Ztschr. f. Immunitätsforsch. u. exper. Therap. **103**: 129 (June 10) 1943.

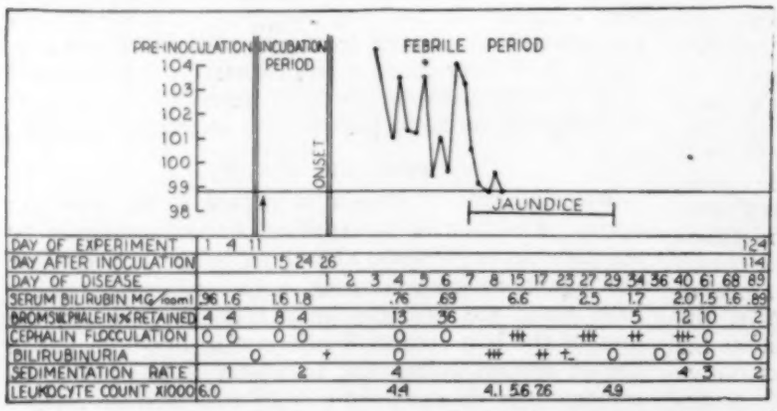
10. Siede, W., and Luz, K.: Zur Ätiologie der Hepatitis epidemica weitere Untersuchungen zum Virusnachweis, Klin. Wchnschr. **22**: 70 (Jan. 23) 1943.

reported but not confirmed. More recently MacCallum and Miles [11] have described the transmission to rats of a filtrable icterogenic agent, following the administration of material derived from patients with infectious hepatitis. It is impossible as yet to know whether this agent originated in the patients or represents a spontaneously occurring infection in the rat. The spontaneous appearance of a filtrable agent causing hepatitis has already been observed in colonies of supposedly healthy mice.[12]

German workers [13] have recently reported the virus of infectious hepatitis as being a polyhedral body with a diameter of the order of 180 millimicrons when visualized by means of the electron microscope. Neither this agent nor the rodent agent have been described as having reproduced the disease in human volunteers.

TRANSMISSION EXPERIMENTS IN HUMAN VOLUNTEERS

A large part of the available information about hepatitis has been obtained through the use of human volunteers in the experimental transmission of this disease. Such experiments of necessity employ a relatively small number of subjects, thereby limiting the statistical value of results. It is evident that positive results are of value and the negative ones less so, requiring considerable caution in their interpretation.



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volunteers by feeding them infectious feces or serum.[22] Some support for this concept is also furnished by the observation that infectious hepatitis often flourishes in places where sanitation is poor and where other diseases spread by the intestinal-oral route (bacilliary dysentery and salmonellosis) are prevalent.

It is difficult to evaluate the immune response elicited by the virus of infectious hepatitis, but there are certain epidemiologic and experimental data which suggest that protective substances may be elaborated in man following infection. Second attacks of infectious hepatitis are said to be uncommon. Experimentally, immunity has been demonstrated in human volunteers convalescent from hepatitis caused by two different strains of virus when challenged with the homologous strain six to nine months after their initial infection.[23] Partial cross immunity between these two strains of virus has also been shown in that volunteers who were convalescent from infection caused by a strain of virus obtained from children with the disease in Pennsylvania [24] were immune when inoculated with a strain of virus derived from a soldier who contracted infectious hepatitis in Sicily.[22b] Further evidence has also been furnished by the demonstration of the prophylactic value of human gamma globulin when administered in the incubation period of infectious hepatitis.[25] This implies the presence of specific antibodies in the blood of the healthy human adult population of this country, possibly elicited by previous clinical or subclinical infection.

Comparison of Behavior of Viruses of Infectious Hepatitis and Homologous Serum Jaundice in Experimentally Infected Human Volunteers

	Virus	Infectious Hepatitis [15]	Homologous Serum Jaundice [16]
1	Filtrable	Seitz EK	Seitz EK
2	Resistance to heat	56 C. 30 minutes	56 C. 60 minutes
3	Susceptible animal	Man only	Man only
4	Incubation period (days)	15 to 34	56 to 134
5	Route of infection (experimental)	Parenteral or oral inoculation	Parenteral inoculation
6	Virus in stool	Acute phase	Not demonstrated
7	Virus in serum	Acute phase	Incubation period and acute phase
8	Immunity		
	A. Homologous	Present	Not tested
	B. Heterologous	Not tested	None apparent

SUMMARY

It is evident that a better concept of infectious hepatitis as a disease entity has been established as a result of clinical and experimental data accumulated during recent war years. In addition to the clarification of certain clinical aspects this disease has been classified as one of virus etiology, which may be spread by the intestinal-oral route and prevented by passive immunization. Although the exact relationship of this disease to another form of hepatitis arbitrarily designated as homologous serum jaundice is not defined, it would seem likely that the two are closely related although not identical, and belong in the same general group.

22. (*a*) MacCallum, F. O., and Bradley, W. H.: Transmission of Infective Hepatitis to Human Volunteers, Lancet **2**: 228 (Aug. 12) 1944. (*b*) Havens, W. P., Jr.; Ward, R.; Drill, V. A., and Paul, J. R.: Experimental Production of Hepatitis by Feeding Icterogenic Materials, Proc. Soc. Exper. Biol. & Med. **57**: 206 (Nov.) 1944.

23. Neefe, J. R.; Stokes, J., Jr., and Gellis, S. S.: Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis, Experimental Study of Immunity and Cross Immunity in Volunteers, Am. J. M. Sc. **210**: 561 (Nov.) 1945. Havens, W. P., Jr.: Immunity in Experimentally Induced Infectious Hepatitis, J. Exper. Med. **84**: 403 (Nov.) 1946.

24. Neefe, J. R., and Stokes, J., Jr.: Personal communication to the author.

25. Stokes, J., Jr., and Neefe, J. R.: The Prevention and Attenuation of Infectious Hepatitis by Gamma Globulin, J. A. M. A. **127**: 144 (Jan. 20) 1945. Gellis, S. S.; Stokes, J., Jr.; Brother, G. M.; Hall, W. M.; Gilmore, H. R.; Beyer, E., and Morrissey, R. A.: The Use of Human Immune Serum Globulin (Gamma Globulin) in Infectious (Epidemic) Hepatitis in the Mediterranean Theatre of Operations: I. Studies on Prophylaxis in Two Epidemics of Infectious Hepatitis, ibid. **128**: 1062 (Aug. 11) 1945. Havens, W. P., Jr., and Paul, J. R.: Prevention of Infectious Hepatitis with Gamma Globulin, ibid. **129**: 270 (Sept. 22) 1945.

THE PATHOLOGY OF EPIDEMIC HEPATITIS

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In the present state of knowledge of epidemic hepatitis, this disease can be defined only in descriptive terms, since the infectious agent has not yet been isolated and identified. The disease is transmissible to human beings by oral or parenteral inoculation with a filter-passing agent, presumably a virus,[1] but in contrast to spirochetal jaundice and yellow fever experimental infection of animals has never been accomplished. It is characterized clinically by evidence of hepatic dysfunction and pathologically by inflammatory and degenerative changes in the hepatic parenchyma. It ordinarily runs a benign, self-limited course of two to three weeks' duration, but symptoms may persist for months, with or without acute recrudescences. Although the mortality is low, death may occur at any stage. On clinical and pathologic grounds it is indistinguishable from the endemic, sporadic disease known for many years as catarrhal jaundice, from homologous serum jaundice and from at least certain cases of hepatitis attributed to arsphenamine therapy.

HISTORICAL DATA

The literature of epidemic hepatitis has recently been reviewed by Lucké,[2] and nothing would be gained by extensive repetition at this time, but a brief historical résumé will serve to explain why the pathology of the disease was comparatively unknown until the outbreak of the second world war. Jaundice due to massive necrosis of the liver was recognized as early as 1842 by Rokitansky,[3] who first described and named acute yellow atrophy.[4] It was, however, regarded as a uniformly fatal disease. Twenty-three years later Virchow [5] suggested that the benign, transient form of jaundice usually seen in young persons was due to a catarrhal inflammation, which occluded the papilla of Vater with a mucous plug. He proposed the term "Icterus catarrhalis," which quickly won worldwide acceptance and dominated medical thought for three

This paper is based on and summarizes certain features of collaborative studies carried out at the Army Institute of Pathology with Col. Balduin Lucké and at the 15th Medical General Laboratory with Major T. H. Horan and Capt. L. S. Jolliffe.

Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

1. (*a*) Findlay, G. M., and Willcox, R. R.: Infective Hepatitis: Transmission by Faeces and Urine, Lancet **2**: 594, 1945. (*b*) Paul, J. R.; Havens, W. P., Jr.; Sabin, A. B., and Philip, C. B.: Transmission Experiments in Serum Jaundice and Infectious Hepatitis, J. A. M. A. **128**: 911 (July 28) 1945. (*c*) Neefe, J. R.; Stokes, J., and Gellis, S. S.: Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis: Experimental Study of Immunity and Cross Immunity in Volunteers; a Preliminary Report, Am. J. M. Sc. **210**: 561, 1945.

2. Lucké, B.: The Pathology of Fatal Epidemic Hepatitis, Am. J. Path. **20**: 471, 1944.

3. Rokitansky, C.: Lehrbuch der pathologischen Anatomie, Vienna, W. Braumüller, 1861, vol. 3, p. 269.

4. It should be emphasized that the term "acute yellow atrophy" has no specific connotation but merely means any acute massive form of hepatic necrosis, which may be caused by a variety of factors. The acute yellow atrophy found in epidemic hepatitis corresponds to the kind formerly known as idiopathic.

5. Virchow, R.: Ueber das Vorkommen und den Nachweiss des hepatogenen, insbesondere des katarrhalischen Icterus, Virchows Arch. f. path. Anat. **32**: 117, 1865.

generations. Few people considered the possibility that the two diseases might be related. Probably the first to do so was Flindt,[6] who as early as 1890 assembled epidemiologic evidence linking the sporadic and epidemic forms of the disease and showing that both could terminate in an acute form of atrophy of the liver. He concluded that the essential lesion was a degeneration of the hepatic parenchyma rather than a disease of the extrahepatic biliary ducts. Unfortunately his work was published in an obscure Danish journal and was quickly forgotten even by his compatriots. In 1912 Cockayne[7] independently reached the same conclusion and abundant confirmation followed, particularly from the Scandinavians, Linstedt,[8] Ehrstrom[9] and Wallgren,[10] all of whom pointed out the parallelism between the incidence of hepatitis and deaths from atrophy of the liver. Despite this steadily increasing volume of evidence general medical opinion remained comparatively uninfluenced, and as late as 1930 Bergstrand[11] reported from Stockholm an epidemic of "yellow atrophy of the liver," paying scant attention to the concurrent epidemic of hepatitis in southern Sweden.

Though the evidence was by now clear that patients dying of hepatitis regularly showed massive necrosis of the liver the possibility remained that this was a superimposed, merely terminal complication. The first evidence of hepatocellular degeneration in early stages of the disease was provided by Eppinger.[12] During the first world war he observed 4 cases of hepatitis in wounded soldiers who died of tetanus rather than of hepatic insufficiency. In all these cases the major biliary ducts were unobstructed and free of inflammation, though such extensive degenerative changes in the liver cells were present that he likened them to a miniature form of acute yellow atrophy. Convincing evidence of hepatic involvement in all stages of the disease could only be provided by biopsy material. Such reports were at first sporadic and concerned individual and clinically atypical cases in which doubt in regard to diagnosis had led to surgical exploration of the patient (Klemperer, Killian and Heyd[13] and Schrumpf[14]). The development in 1939 by Roholm and Iversen[15] of a technic for aspiration biopsy of the liver permitted for the first time systematic studies of groups of patients. Their method was quickly adopted in other countries, and Dible, McMichael and Sherlock[16] in England and Axenfeld and Brass[17] in Germany utilized it with equal success. All these groups of investigators demonstrated a combination of inflammatory and degenerative changes in the liver throughout the icteric period of the disease.

6. Flindt, N.: Bemaerkninger med Hensyn til den saakaldte katarralske Ikterus's Aetiologi og Genese, Biblioth. f. læger **1**: 420, 1890.

7. Cockayne, E. A.: Catarrhal Jaundice, Sporadic and Epidemic, and Its Relation to Acute Yellow Atrophy of the Liver, Quart. J. Med. **6**: 1, 1912.

8. Linstedt, F.: Beitrag zur Kenntnis des Ikterus catarrhalis mit besondere Rucksicht auf die Inkubationszeit dessen epidemischen Formen, Nord. med. ark. **2**: 583, 1919.

9. Ehrstrom, R.: Icterus catarrhalis, akute gelbe Leberatrophie und chronische Hepatitis als Aeusserungen derselben Krankheit, Hepatitis epidemica, Acta med. Scandinav. **65**: 573, 1927.

10. Wallgren, A.: Erfahrungen über epidemischen Icterus (sog. Icterus catarrhalis), Acta pædiat. (supp. 2) **9**: 1, 1930.

11. Bergstrand, H.: Ueber die akute und chronische gelbe Leberatrophie, Leipzig, G. Thieme, 1930.

12. Eppinger, H.: Die pathogenese des Ikterus, Verhandl. d. deutsch. Gesellsch. f. inn. Med. **34**: 15, 1922.

13. Klemperer, P.; Killian, J. A., and Heyd, C. G.: The Pathology of "Icterus Catarrhalis," Arch. Path. **2**: 631 (Nov.) 1926.

14. Schrumpf, A.: Un cas d'ictère "catarrhal" avec biopsie, Ann. d'anat. path. **9**: 17, 1932.

15. Roholm, K., and Iversen, P.: Changes in the Liver in Acute Epidemic Hepatitis (Catarrhal Jaundice) Based on Thirty-Eight Aspiration Biopsies, Acta path. et microbiol. Scandinav. **16**: 427, 1939.

16. Dible, J. H.; McMichael, J., and Sherlock, S. P. V.: Pathology of Acute Hepatitis: Aspiration Biopsy Studies of Epidemic, Arsenotherapy and Serum Jaundice, Lancet **2**: 402, 1943.

17. (*a*) Axenfeld, H., and Brass, K.: Klinische und bioptische Untersuchungen über den sogenannten Icterus catarrhalis, Frankfurt. Ztschr. f. Path. **57**: 147, 1942; (*b*) Weitere Beiträge zur Morphologie und Pathogenese der Hepatitis epidemica insbesondere zur Frage der Hepatitis epidemica sine iktero, Frankfurt. Ztschr. f. Path. **58**: 221, 1944.

MATERIAL

The epidemic of hepatitis in the American Army during the recent war has furnished abundant opportunity for further studies of its pathologic aspects. These have been or will be published in detail in other places.[18] Since I had the privilege of collaborating in several phases of the work I will quote liberally from these observations in this article. From the spring of 1942 to April 1945 material from 296 fatal cases of the disease was submitted to the Army Institute of Pathology. The first 118 of these were reported by Lucké[2] in 1943. The succeeding 178 were reviewed by Lucké and Mallory.[18b] During the autumn of 1944 and the winter and spring of 1945 a series of 160 peritoneoscopic biopsies of the liver were collected by Horan, Jolliffe and Mallory[18c] from 137 volunteers exemplifying various stages of the disease. All were procured in Italy at a time when hepatitis was epidemic in the area. There were no untoward complications of the procedure, and the patients either returned to duty or were sent back as convalescents to the United States. Consequently they may be regarded as representative of the nonfatal form of the disease. Since the observations differ significantly it will be best to consider the pathologic data of the fatal and nonfatal cases separately.

FATAL HEPATITIS

Most cases of fatal hepatitis can readily be classified into one of two types, subacute and fulminant, which show corresponding variations in clinical and pathologic observations. The first, or subacute, type is exemplified by the Swedish epidemic of 1927 reported by Bergstrand[11] and by the series of cases from the American Army during 1942 and early 1943 which have been reported by Lucké. None of the patients in the latter group died in less than ten days. A few survived one hundred days or more, and in 59 per cent the duration ranged from twenty to fifty days. In these cases the livers showed extensive but irregularly distributed necrosis and numerous foci of regeneration. In the material studied by Lucké and myself at the Army Institute of Pathology since August 1943 the majority (53 per cent) of the patients died in less than ten days, many in as short a period as three or four days and a few even before the onset of jaundice. In this type of case necrosis is diffuse and massive and no evidence of regeneration is seen.[18b] Cases of this type have recently been reported by Wood[19] in material derived from personnel of the United States Navy. Despite the difference in the two types, enough points of similarity and enough transitional forms are observed to make it certain that one is dealing not with two diseases but with a wide range of reaction to the same fundamental disorder.

The significant pathologic process of the disease is centered in the liver. In the subacute form of the disease the organ is grossly deformed. It is usually

18. (*a*) Lucké, B.: The Structure of the Liver After Recovery from Epidemic Hepatitis, Am. J. Path. **20**: 595, 1944. (*b*) Lucké, B., and Mallory, T. B.: The Fulminant Form of Hepatitis, Am. J. Path. **22**: 867, 1946. (*c*) Horan, T. H.; Jolliffe, L. S., and Mallory, T. B.: Peritoneoscopic Biopsies in Nonfatal Epidemic Hepatitis, to be published. (*d*) Lucké.[2]

19. Wood, D. A.: Pathologic Aspects of Acute Epidemic Hepatitis, with Especial Reference to Early Stages: Report of a Series of Ten Cases, Including a Case in Which There Was Spontaneous Rupture of the Spleen and Six Cases of Fulminating Disease in Patients Who Had Been Wounded Several Months Previously, Arch. Path. **41**: 345 (April) 1946.

smaller than normal, commonly weighing 1,000 to 1,400 Gm., but may be as small as 600 Gm. or may even be enlarged, depending on the relative proportions of necrosis and regeneration. The external surface is irregular. Depressed, wrinkled, usually reddish patches alternate with projecting yellow-green nodules or bosses. The fulminant cases, in contrast, show a diffuse and uniform alteration throughout the liver. Frequently the organ is but slightly shrunken; it may be tense but is usually soft and may be so flabby that it tends to flatten when laid on the table. The capsule is often wrinkled. The color is extremely variable, yellow, red or even purple, and often mottled. On cross section the markings may be exaggerated, resembling an extreme form of nutmeg liver or may be totally obscured. In some the congestion is so intense that the cut surface resembles spleen more than it does liver. In most cases one would not suspect from the gross appearance of the organ the massive necrosis of parenchyma which the microscopic sections reveal.

The microscopic appearances of the liver in the two types of the disease differ less than the gross observations would lead one to expect. Common to both, though the proportions vary, are two main features: necrosis of hepatic cells and inflammatory reaction. In neither is there any involvement of the reticulum other than shrinkage in areas where parenchymatous cells have disappeared.

The necrosis is almost invariably central. In the subacute type it is irregular in distribution. It affects some lobules in their entirety, others only partially. In the fulminant type the distribution is more uniform, and only narrow rims of viable liver cells persist at the extreme periphery of the lobules. In both types the necrosis always appears to be of the autolytic rather than the coagulative type, and even in the most acute cases with clinical histories indicating durations of less than three days the affected cells have usually completely disappeared.

The inflammatory reaction is found chiefly in the stroma of the portal areas and at the interlobular boundaries. It is composed predominantly of histiocytes, lymphocytes and plasma cells, but neutrophils and eosinophils are always present in small numbers. Inflammatory reaction within the lobule is inconstant. It is predominantly histiocytic in character, though neutrophilic leukocytes may be present in varying proportions. Sometimes the histiocytes are numerous enough to almost seem to replace the missing liver cells; in other cases they are present in small numbers only. A final evidence of inflammation is endophlebitis of the central and other efferent veins. The periportal and intralobular inflammatory reactions are usually more pronounced in the fulminant than in the subacute cases. The central endophlebitis in contrast is more conspicuous in the cases of longer duration.

Regenerative changes occur both in hepatic cells and in biliary duct epithelium. Changes in the latter are the first to appear, and proliferation of the biliary ducts may already be evident in the most acute cases, even with apparent durations of only two to three days. Conspicuous regeneration of liver cells in contrast appears only after a latent period of several days. It is the lack of significant hepatic cell regeneration which serves to distinguish anatomically the fulminant from the subacute type. When regeneration finally begins it invariably starts from persisting cells at the periphery of the lobule. The newly formed cells are often abnormally large and multinucleate and seldom succeed in reconstituting normal lobules with orientation of the cords about a central vein. In areas in which lobular destruction has been complete regeneration does not occur, accounting for the large depressed foci of "red atrophy" which separate the regenerative nodules of the subacute type.

EXTRAHEPATIC PATHOLOGY

In contrast to the dramatic changes in the liver, little that is noteworthy is found in the remainder of the body and most of what is seen can be explained as secondary to destruction of hepatic parenchyma. The extrahepatic biliary ducts so infrequently show any evidence of occlusion that the occasional presence of a small plug of inspissated material in the common duct or papilla of Vater can be considered coincidental. Lymphoid hyperplasia is frequent, especially in acute cases, and may be generalized or restricted to the abdominal nodes. The spleen is commonly slightly enlarged, from 200 to 300 Gm., and only occasionally reaches the 500 to 600 Gm. range. In the acute cases the enlargement is dependent on congestion and hyperplasia; in those of longer duration it gradually assumes the character seen with portal hypertension. The phlegmonous enteritis frequently noted as a terminal complication of the subacute cases was not observed in the fulminant type. Ascites is common and increases in frequency with chronicity. The kidney in acute cases shows fat storage in the proximal convoluted tubules and in the subacute ones may show a bile nephrosis of moderate severity. Despite the prominence of cerebral symptoms acute cases show only a mild nonspecific encephalopathy. Those of longer duration occasionally show slight lymphocytic infiltration of the meninges and lymphocytic cuffing of small vessels in the basal ganglions. The lesions do not suggest direct virus infection of the central nervous system.

TABLE 1.—*Histologic Observation in Acute Phase of Hepatitis*

Group	Number	Histopathologic Changes		
		Positive	Doubtful	Negative
Icteric	20	20	0	0
Preicteric	7 (2)	7	(1)	(1)
Subicteric	7	5	1	1
Nonicteric	18	5	5	8

NONFATAL HEPATITIS

Epidemic hepatitis is characteristically a benign disease, since at least 99.6 per cent of all patients recover. The fatal case is atypical, so it is only by means of biopsies that the hepatic lesion of the usual form of the malady can be observed. Moreover, the biopsy method permits one to compare one stage of the disease with another and to observe the progress and regression of the changes. It will be convenient to describe first the lesions of the acute preicteric and icteric stages and then those observed in the posticteric stage.

I. *Acute Stage.*—Fifty-four biopsies were obtained from patients believed to be in the acute or progressive phase of the disease. These cases fell readily into four groups, whose distribution is shown in table 1.

Twenty characteristic cases were selected to illustrate various stages of the icteric phase. These provided control material for comparison with nonicteric stages of the disease and with atypical cases in which clinical jaundice never developed. Thirty-four patients were

chosen who manifested the usual prodromes of the preicteric stage. Nine of these subsequently became jaundiced and are classified as preicteric. Seven never developed clinical jaundice but within the expected period a transient rise of serum bilirubin to levels below 2.5 mg. per cent was observed. We have called these

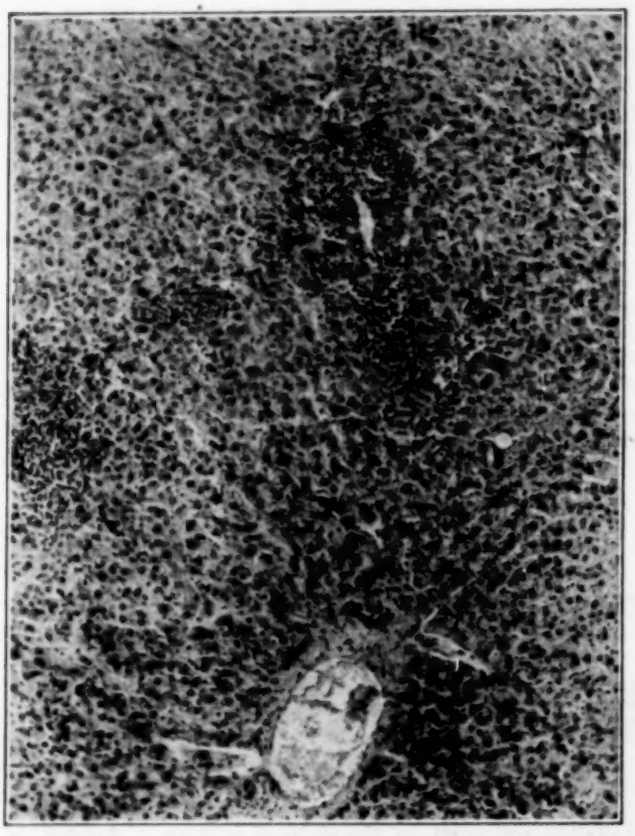

Fig. 1.—Preicteric case: Biopsy on the seventh day of illness, jaundice appeared on the eighth day. It shows perilobular infiltration, extension into the lobule, prominence of reticuloendothelial cells and lobular disarray.

subicteric cases. Eighteen other cases never showed either clinical or chemical evidence of bilirubin retention and are classified as nonicteric. A description of the microscopic observations in the various groups follows:

A. The Icteric Stage: Six features were found to be constantly present in the icteric stage, though the severity of any one change and of the total syndrome varied over wide limits.

1. Periportal inflammatory infiltration: This does not differ significantly from that observed in the fatal cases. It is always predominantly mononuclear. Histiocytes and lymphocytes are most numerous, but plasma cells are usually present. Neutrophils and eosinophils can always be found, and the latter are occasionally numerous. The cells show no evidence of degeneration or necrosis. In many instances a tendency for the inflammatory cells to infiltrate the periphery of the lobule is apparent.

2. Intralobular inflammation. Within the lobule itself the reticuloendothelial cells are everywhere conspicuous due to swelling and hyperchromatism. They frequently contain both biliary pigment and droplets of fat. There are also many focal collections of histiocytes, some of of which may be formed locally, perhaps from Kupffer cells, since mitoses are occasionally seen. They may lie either within the sinusoidal lumens or in the space of Desse. Frequently they are clumped about the remnant of a necrotic liver cell which has been extruded from the column.

3. Lobular disarray: The normal radial arrangement of the hepatic cords is commonly obscured. They vary in width as the result of shrinkage of some cells and swelling of others. They seem to twist and kink, and their continuity is frequently interrupted. The reticular pattern is distorted, and foci of condensation may be apparent.

4. Liver cell degeneration and necrosis: In the biopsy material studied by Horan, Jolliffe and myself[18e] acute central necrosis of the autolytic type characteristic of the fatal form of the disease was not observed. In contrast all cases showed another form of necrosis mentioned by Roholm and Iversen[15] and Dible and associates,[16] but first fully described by Axenfeld and Brass.[17a] This consists of acidophilic degeneration of individual cells at any point in the lobule. The stippled cytoplasm of the normal cell becomes homogeneous and intensely eosinophilic. The nucleus becomes first pyknotic, then fragmented and finally disappears. The cell separates from its neighbors and from the sinusoidal membrane, loses its polygonal shape and shrinks into a hyaline spherical body somewhat resembling the Councilman body of yellow fever. This is extruded from the cell column and passes into the space of Desse or sometimes into the sinusoidal lumen. In either location it may form the focus for a collection of monocytes.

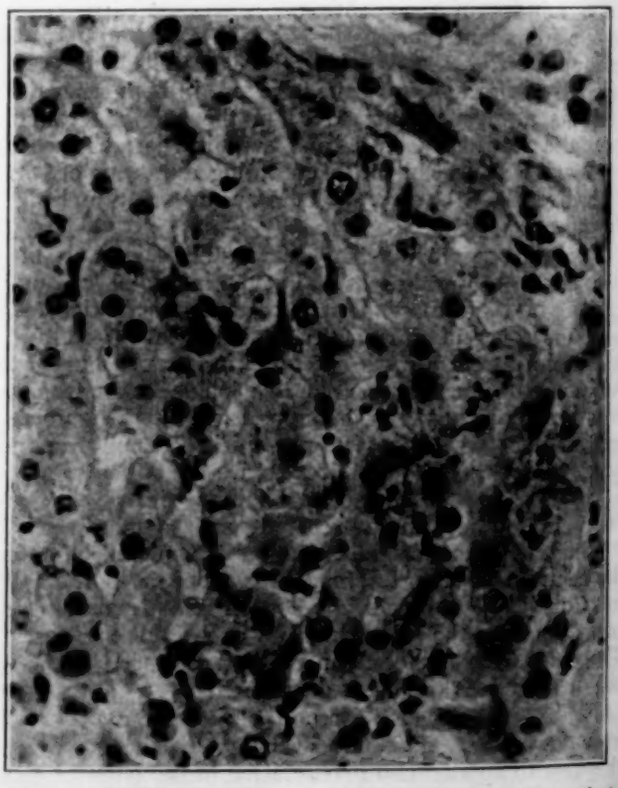

Fig. 2.—Subicteric case: Biopsy on ninth day of illness. The patient was never clinically jaundiced. The serum bilirubin level rose to a maximum of 1.52 mg. per hundred cubic centimeters. The hepatic cords appear disorganized. Various stages of acidophilic necrosis of liver cells are apparent. There is an increase in the number and prominence of endothelial nuclei.

Another but much less frequent evidence of hepatic cell degeneration is a ballooning of the cytoplasm. The cell may increase to four or five times the normal diameter; the cytoplasm becomes extremely pale and appears to consist of widely separated granules, but fat is not

demonstrable. The nucleus may become atypical, and the cells are frequently multinucleate. This type of change is usually restricted to the central portion of the lobule.

5. Regeneration: Throughout the active phase of the disease mitotic figures are readily found in liver

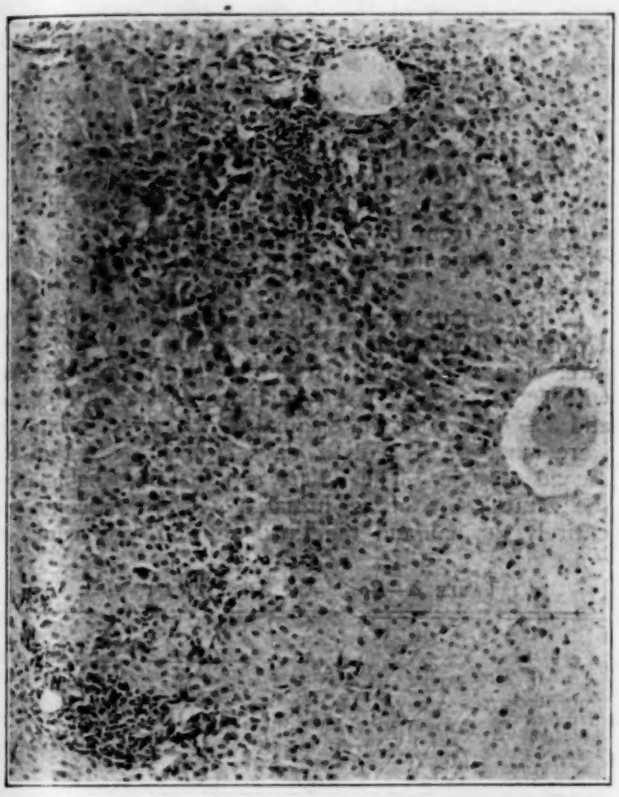

Fig. 3.—Acute nonicteric case: Biopsy on fifth day of illness. The maximum serum bilirubin was 0.25 mg. per hundred cubic centimeters. The icteric index was 4. The cephalin flocculation readings were 3/4 and 4/4 plus. Low power magnification shows mild periportal inflammatory infiltration but many foci of inflammatory cells within the lobule.

cells. They are particularly numerous in the acute stages and often seem disproportionate to the amount of visible necrosis. Five or more mitoses are frequently present in a single field, and multipolar mitoses are by no means infrequent. It is possible that the numerous multinucleate cells represent abortive, unsuccessful attempts at cellular multiplication.

Mitoses in biliary duct epithelium are much less frequent. Elongation and convolution of the ducts, however, indicate proliferative activity in the majority of cases.

6. Biliary Stasis: In icteric cases the biliary canaliculi are slightly dilated, and biliary thrombi can regularly be found if they are not dissolved in the process of paraffin imbedding. Small droplets of bile are also present in the cytoplasm of the liver cells. Both of these processes are most apparent and usually restricted to the central portion of the lobule.

B. Preicteric Cases: In 7 of the 9 patients in this group overt jaundice developed within one to seven days of the time of biopsy. The biopsies were taken from the fifth to the fourteenth day of illness. In all 7 specimens periportal and intralobular inflammation, lobular disarray, focal necrosis and mitotic activity were apparent in a severity equal to or surpassing many of the icteric cases (fig. 1). Biliary stasis was present in only 1 case in which a biopsy specimen had been taken twenty-four hours before the appearance of jaundice.

In the 2 remaining cases jaundice developed thirty and thirty-one days following biopsy. Since this is well beyond the usual duration of the preicteric period, it is impossible to be certain whether or not the patients were infected at the time of biopsy. The biopsy from 1 was entirely negative and from the other showed only questionable changes.

C. Subicteric Cases: In 5 of the 7 subicteric cases the observations were qualitatively indistinguishable from those of the preceding (preicteric) group. No case showed biliary stasis, and the intensity of inflammatory, degenerative and regenerative phenomena was not much below that observed in the preceding group (fig. 2). In 1 case biopsied on the fourth day of disease the changes were minimal and in 1 taken on the seventh day no abnormality was observed.

D. Nonicteric Cases: Eighteen suspected cases never showed either clinical or chemical evidence of bilirubin retention despite close study. In 5 of these all the usual changes except biliary stasis were present in mild to moderate degree (figs. 3 and 4). In 5 others, one or more criteria were positive but the remainder were absent, and the observations were considered equivocal. In 8 cases the biopsy specimen was completely normal.

II. *Posticteric Stage.*—Abundant clinical evidence such as the persistence of symptoms, physical signs

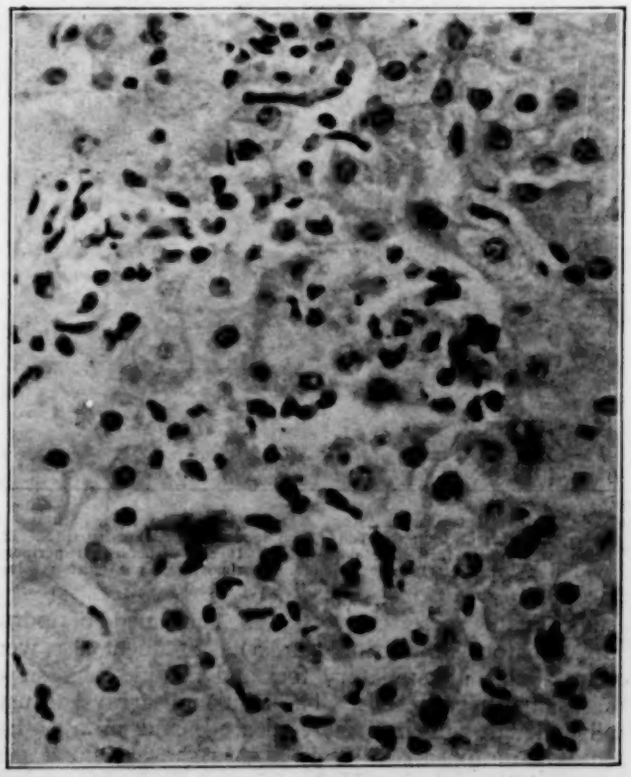

Fig. 4.—Same case as figure 3. Detail from midzone of lobule to show pronounced disorganization of hepatic columns, prominent Kupffer cells and foci of histiocytes. Many of the last mentioned are collected about necrotic liver cells which have been extruded from the hepatic columns.

or abnormal results of laboratory tests suggests that the disease may not terminate coincidentally with the disappearance of clinical jaundice. Many cases in the recovery phase were therefore selected for study, including examples of apparently normal convalescence and of delayed recovery. The distribution of these cases by

clinical groups and the incidence of positive histologic observations is shown in table 2.

A. Normal Recovery Group: Of the 20 convalescent patients constituting this group 2 had not had biopsy specimens taken in the acute stage of the disease. The remaining 18 had had previous biopsies, and all but 2, a subicteric and a nonicteric case, respectively, had proved histologically positive. The dates of rebiopsy ranged from the thirty-fourth to the one hundred and thirty-first day from onset, twenty-five to one hundred and ten days after the appearance of jaundice. Seven of the repeat biopsies, including the 2 previously negative, showed no significant abnormalities. Five cases showed minimal changes which were regarded as of doubtful significance. In the remaining 8, definite evidences of persistent hepatitis were present. Most

Fig. 5.—Normal convalescence. A biopsy taken on the eighth day of illness, the fifth of jaundice, had shown moderately severe hepatitis. This biopsy was taken forty-nine days later. It shows persistent periportal infiltration. The intralobular lesions have almost but not quite resolved.

constant of these changes was continued periportal inflammatory infiltration (fig. 5). Frequent also were intralobular inflammatory foci and hyaline necrosis of occasional hepatic cells. The lobular disarray had usually though not invariably cleared, and mitoses had entirely disappeared. Only 1 case showed slight persistent biliary stasis. Multinucleate cells had frequently increased in number. A new phenomenon, seldom seen in the acute stage, was the development of fat vacuoles in many of the liver cells.

The rate of recovery from hepatitis even in the clinical group of normal convalescents evidently varies over wide limits. In 2 cases examined on the thirty-second and thirty-third days the hepatitis had almost cleared, and 4 cases observed between the forty-fifth and fifty-third days revealed entirely normal conditions. Only 2 of the latter had shown severe lesions on the first biopsy. At the other end of the scale, 1 case studied on the eighty-third day from onset, the seventy-third from the appearance of jaundice, still showed moderately severe activity.

B. Recrudescences: One of the most obvious reasons for delayed recovery was a recrudescence of the acute symptoms of the disease during convalescence. Such episodes commonly occurred from the thirtieth to fiftieth day of the disease and were often of clinical severity equal to or even greater than the original attack. Three of the examples studied were at the peak of the recrudescence, the others at intervals from twenty-four to one hundred and thirty days after the second appearance of jaundice. The changes differed in no way from those observed in biopsies taken at equivalent time intervals during or succeeding an initial attack.

C. Recurrent Attacks: Recurrence of hepatitis after a prolonged interval of normal health is by no means rare. Biopsy specimens were obtained from 3 patients with such attacks. The recurrence developed 300, 360 and 390 days after the original attack, and the biopsies were made 3, 48 and 97 days after the onset of the second episode. The first was indistinguishable from the acute stage of an initial attack, the second was entirely normal and the third showed only equivocal

TABLE 2.—*Posticteric Stage of Hepatitis*

Group	Number	Hepatitis		
		Positive	Doubtful	Negative
Normal recovery	20	8	5	7
Recrudescence	16	10	6	0
Recurrent attacks	3	1	1	1
Delayed recovery	40	15	10	15
Chronic nonicteric	10	1	2	7

evidence of abnormality. No trace of permanent hepatic damage attributable to the first attack was found in any case.

D. Delayed Recovery: Forty cases were classified clinically as instances of delayed recovery because of the persistence of symptoms, signs or abnormal laboratory observations or some combination of these factors. Biopsies were obtained over a wide range of time from one hundred to five hundred days after the onset of the acute attack. In 15 the livers were normal, in 10 the observations were minimal and were recorded as doubtful and in 15 they were clearly positive. In the last 15 the changes were essentially similar to those in the normal convalescent group; periportal and intralobular inflammation and focal hyaline necrosis persisted, but biliary stasis and lobular disarray had cleared and mitoses were seldom found.

E. Chronic Nonicteric Group: One final group of 10 clinically debatable cases remains. They had been clinically diagnosed as chronic hepatitis without jaundice. These patients gave no history of an acute icteric episode. In 3 an abrupt onset with symptoms characteristic of the prodromal period suggested an attack of subicteric or nonicteric hepatitis. In 3 others the history of acute onset was questionable, and in the remaining 6 none could be obtained. These patients were clinically indistinguishable from the delayed recovery group. For periods ranging from eighty to three hundred days they had complained of symptoms such as easy fatigue, anorexia and fat intolerance. The livers were palpable and frequently tender, and a scattering of laboratory tests was positive. In only 1 case

from the group with abrupt onset were the results of the functional tests consistently abnormal: a cephalin cholesterol flocculation test of 4 plus in both tubes at the end of twenty-four hours, sulfobromophthalein sodium retention of 40 per cent and a bilirubin level of 1.7 mg. per hundred cubic centimeters. This case alone in the group showed positive histologic evidence of active hepatitis. Two other cases which showed occasional foci of acidophilic necrosis but no inflammatory changes were classed as doubtful. Two of the remaining 7 specimens were entirely normal. The other 5 showed nonspecific changes, such as fat vacuolization or slightly enlarged hydropic cells, which could not be regarded as evidence of hepatitis.

COMMENT

Comparison of Epidemiologic and Clinicoanatomic Classifications of Hepatitis.—In the introduction four epidemiologic types of hepatitis were mentioned, the sporadic and the epidemic forms of the naturally acquired disease, homologous serum jaundice and hepatitis due to arsphenamine. Are there corresponding anatomic variations? The verdict of all groups working with the biopsy technic is unanimously negative. Roholm and Iversen's material included both sporadic and arsphenamine-treated cases, and they could distinguish no differences. Axenfeld and Brass compared sporadic and epidemic cases and found them identical. Dible, McMichael and Sherlock compared epidemic hepatitis, arsenotherapy jaundice and homologous serum jaundice and likewise concluded that the pictures were indistinguishable. My own biopsy studies of epidemic cases are in close agreement with all these three series.

Lucké and Mallory showed that most cases of fatal hepatitis fell into two types, the subacute and the fulminant form. A large proportion of the cases in the latter group occurred in severely traumatized or wounded men who had received plasma or whole blood as a resuscitative measure. The interval between injury (and, by implication, transfusion) and the development of jaundice ranged from thirty to one hundred and twenty days with 60 per cent of the cases falling in the fifty to ninety day interval. This range is well within the known incubation period of homologous serum jaundice, and it seems fair to assume that most of the cases may be so classified. The relative distribution of the two types of disease in wounded and nonwounded patients is shown in table 3.

It is evident that the spontaneous disease can run either a subacute or a fulminant course and that in this series of severely wounded men the homologous serum type was overwhelmingly of the fulminant variety. These observations are balanced, however, by Lucké's 1942 series of cases, which were all of the subacute variety, despite the fact that the majority were homologous serum jaundice secondary to vaccination against yellow fever. The method of infection is evidently not the explanation of variations in clinicoanatomic type, and if different viruses are involved [1c] they produce identical effects.

Types of Degeneration and Necrosis of Liver Cells.—In fatal cases of hepatitis massive central necrosis of the autolytic type has been invariably found. In biopsy material from nonfatal disease it may be present [20] but is exceptional. The only patient of Roholm and Iversen to show it died shortly after biopsy. It was present in none of my cases at the time of biopsy, but its former presence could be inferred in 1 instance from condensation of the reticulum about the central vein.

Another feature frequently recorded in biopsy studies of hepatitis has been variously described as hydropic [20a] or granular [13] degeneration of liver cells. This also is inconstant and is usually seen in the severer cases. It was present in 9 acute cases in this study but was extensive in only 3. It is most definite in the center of the lobule, is frequently associated with central necrosis and may well be its precursor, as Roholm and Iversen suggested.

In contrast to these inconstant phenomena the acidophilic, hyaline necrosis of individual cells was invariably found in all progressive stages of the disease. This also was the experience of Axenfeld and Brass. They described it as most frequent in the center of the lobule, but in my material it appeared to be scattered indiscriminately without lobular orientation. It is necrosis of this type which appears to be primarily responsible for the disorganization of the hepatic columns which is such a conspicuous feature of the acute stage.

Central necrosis, which is so constant a feature of autopsy material, has not in my experience proved characteristic of the typical and therefore nonfatal case of hepatitis. It is so different in character and distribution from the acidophilic, coagulative necrosis of individual cells that an entirely different mechanism probably is involved.

TABLE 3.—*Duration of Disease in One Hundred and Seventy-Eight Cases of Fatal Hepatitis*

Duration, Days	Wounded (Inoculation Jaundice)	Not Wounded (Epidemic and Sporadic)
Less than 10	58	34
10 to 19	16	23
20 and over	3	44
Total	77	101

Nonicteric Hepatitis.—The material in this study provides abundant evidence that active hepatitis may exist without clinical jaundice. All cases of hepatitis have their nonicteric stages. The liver already shows severe degenerative, regenerative and inflammatory changes in the earliest biopsies, which were obtained from one to seven days before the development of clinical jaundice. Active hepatitis furthermore persists several to many weeks after the disappearance of clinical jaundice, even in cases which appear to be making a normal clinical recovery.

The existence of nonicteric hepatitis has repeatedly been inferred to explain certain epidemiologic features of the disease.[10] A single case with histologic verification was reported by Axenfeld and Brass. My associates and I have found numerous examples in our own material. They fall into two types on the basis of the serum bilirubin levels. In one, elevations of serum bilirubin to levels from 0.7 to 2.0 mg. per hundred cubic centimeters were observed, in the second repeated checks failed to demonstrate any rise above the normal level. The histologic observations in both these groups exhibited all the criteria of hepatitis except biliary stasis. Though the average intensity of inflammatory and degenerative change was slightly below that manifested in the icteric group, there was much overlapping; in several instances nonicteric cases showed severer lesions than did the frankly icteric ones. We were unable to recognize any consistent anatomic basis for the development of icterus.

20. (*a*) Roholm and Iversen.[3d] Axenfeld and Brass.[21a] (*b*) Dible, McMichael and Sherlock.[3e]

SUMMARY

The pathology of fatal and nonfatal hepatitis has been compared on the basis of a survey of 296 autopsy reports and 160 biopsies from 137 cases of nonfatal disease.

Epidemic hepatitis, in either fatal or nonfatal form, is characterized pathologically by the simultaneous occurrence of inflammatory and degenerative changes in the hepatic parenchyma. In fatal cases the degeneration takes the form of massive autolytic necrosis, which in some areas may be followed by extensive regeneration. In benign cases massive necrosis is seen only exceptionally, whereas acidophilic coagulative necrosis of individual cells is constantly present. Other changes found in the progressive stage of the disease are disorganization of the lobular pattern, focal intralobular collections of inflammatory cells and active regeneration of the liver cells. All these factors are present in the prodromal period of the disease before jaundice becomes apparent, and many of them may persist for weeks after it has disappeared. Evidence has been presented that acute epidemic hepatitis with histologically characteristic involvement of the liver may run its course without the development of clinical jaundice.

JAUNDICE IN RELATION TO CIRRHOSIS OF THE LIVER

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In the course of a recent analysis of the effect of treatment of patients with decompensated Laennec's cirrhosis,[1] we were impressed with the increasing incidence of jaundice in recent years. We are reporting our observations in order to propose some questions concerning the part that this jaundice plays in the life cycle of cirrhosis, especially of Laennec's cirrhosis.

Rolleston and McNee (1929) say: "Jaundice is not a prominent feature in portal cirrhosis, but it is met with at some time in the course of the disease in more than one third of the cases. Thus in 293 cases, obtained by combining the statistics of Fagge, Yeld and Sears and Lord, jaundice was recorded in 107, or 36.5 per cent. Eppinger estimated that it occurred in half the cases. The jaundice is usually slight and often transient. It may be merely an incident in the course of the disease, and have passed away before the patient comes under observation with indubitable cirrhosis. . . . Functional failure of the liver cells probably plays a more important part than biliary obstruction in the production of the jaundice." [2] Ratnoff and Patek [3] found jaundice in 65 per cent of patients in their series and placed emphasis on its frequency. Since this time a number of writers have confirmed this observation.

Features to be emphasized in the report herewith presented are (*a*) the frequency of the jaundice (four fifths of cases) in the 1941 to 1945 period and (*b*) the increase in the incidence of jaundice, which doubled between the 1936 to 1940 period and the 1941 to 1945 period.

The patients on whom this report is based fall into two groups seen during two periods of five years, 1936 to 1940 and 1941 to 1945. The 1936 to 1940 group we have labeled A, the 1941 to 1945 group, B. The patients in group A were treated symptomatically with a house diet, mersalyl, paracentesis and withdrawal of alcohol. The patients in group B were treated in addition with a high protein (150 to 250 Gm.), high carbohydrate (350 Gm.), low fat (60 Gm.) and high vitamin diet, according to the concept introduced by Patek in 1937.[4] The incidence of visible jaundice in group B was double that in group A. Despite this fact the death rate in group B was three-fourths that of group A and the survival time of patients in group B was two to four times that of those in group A.[1]

In an effort to minimize error we have excluded from our study all cases except those in which the clinical diagnosis of Laennec's cirrhosis appeared unquestioned. All the cases analyzed showed signs of hepatic decompensation. As evidence of decompensated cirrhosis we accepted the following: ascites, edema of the ankles, obvious splenomegaly, esophageal varices as demonstrated roentgenologically or by gross hematemesis or melena. Jaundice was not included as an evidence of hepatic decompensation. To avoid confusion concerning the nature of edema of the ankles and ascites, and despite the fact that Laennec's cirrhosis and cardiac decompensation may often coexist, we have excluded all cases which show evidence of cardiac decompensation. Since this is a study of clinically evident cirrhosis, we have not included in the present analysis cases in which Laennec's cirrhosis was demonstrated at autopsy but either was not suspected clinically or did not give clinical evidence of hepatic decompensation.

In selecting the cases for analysis we attempted to study all the charts filed in the record room under the diagnosis of cirrhosis of the liver. This was impossible in the earlier group, since the charts were being microfilmed and were not all available for study. From the earlier period, A, 160 successive unselected charts were studied and compared with 200 successive unselected charts from the later five year period, B. In the first five year period, A, our information was obtained entirely from the charts. One of us, Dr. William H. C. Chapple, has seen most of the patients in the second five year period, B, and has done most of the work for this paper. The histologic slides were reviewed by Dr. Samuel Sanes.

Table 1 shows the diagnosis noted in this group of 360 cases. It will be seen that of 160 patients in the first five year period, A, 57 who demonstrated clinically decompensated cirrhosis have been included for analysis and of 200 patients in the second five year period, B, 86 have been included for analysis.

Our patients were seen in the general ward service of a city hospital required by law to admit all who apply, including the persons with chronic and recurrent

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

1. Kimball, S., and Chapple, W. A. C.: Laennec's Cirrhosis: A Disease with an Improving Prognosis, Gastroenterology **8**: 185, 1947.

2. Rolleston, H., and McNee, G. W.: Diseases of the Liver, Gall Bladder and Bile Ducts, London, The Macmillan Company, 1929, p. 258.

3. Ratnoff, O. D., and Patek, A. J., Jr.: The Natural History of Laennec's Cirrhosis of the Liver, Medicine **21**: 207, 1942.

4. Patek, A. J., Jr.: Treatment of Alcoholic Cirrhosis of the Liver with High Vitamin Therapy, Proc. Soc. Exper. Biol. & Med. **37**: 329, 1937.

alcoholism. The conditions for clinical study and control of treatment were good. The interest of the members of the staff in vitamin deficiencies was strong. Opportunities for outpatient follow-up after discharge of the patients were excellent, but the chronic alcoholic addicts seldom availed themselves of this opportunity. At home they occupied themselves more consistently with drinking than with eating. When they again required hospitalization they generally returned to the same service, since other hospitals in the city do not welcome persons with chronic alcoholism. This presented an excellent opportunity for follow-up studies.

The percentage of patients who were confirmed and chronic alcoholic addicts and the percentage of those who showed clearcut evidence of vitamin deficiency are shown in table 2. It is probable that the difference in occurrence of vitamin deficiency represents a difference in observation and recording rather than a true difference in incidence. The deficiencies noted include: bleeding tendencies such as purpura or bleeding gums; cheilosis; atrophic, red or purple tongue; pellagra; peripheral neuritis, and combinations of the foregoing.

TABLE 1.—*Comparative Study of Five Year Periods*

	A	B
Alcoholic addicts with large livers	42	67
Other alcoholic addicts, cardiac cirrhosis	42	22
Autopsy only	19	25
Decompensated cirrhosis	57	86
	100	200

TABLE 2.—*Etiologic Classification*

Group	Total Cases	Chronic Alcoholism	Clearcut Vitamin Deficiences
A	57	36	5
B	86	79	35

The physical observations are listed in table 3. It will be noted that the reported incidence of palpable livers is high. How many of these livers were enlarged is open to question. There was at times actual enlargement; but even when a liver is reduced in size, as proved at autopsy, it is so increased in firmness that on deep inspiration its edge is often felt below the costal margin. The incidence of spider angiomas noted on the tables is certainly below the actual incidence. The same is true of the reported occurrence of signs of vitamin deficiency, especially as seen in the tongue.

It is evident that whatever may be the etiologically significant factors in Laennec's cirrhosis, alcoholism is a dominant factor and nutritional deficiency a significant factor in the life history of the patients in this series. We are raising this question: How far may intrahepatic damage associated with attacks of acute jaundice play a part in the progress and terminal picture of Laennec's cirrhosis?

The incidence of jaundice (table 3) doubled in the second as compared with the first five year period. This was jaundice which was clinically, not merely serologically, evident. The history of jaundice is summarized in table 4. In all but 3 cases, 1 in group A and 2 in group B, the jaundice was present at the time of admission or developed while the patient was in the hospital for treatment of his cirrhosis. These 3 patients had had jaundice in the past but did not manifest it while they were in the hospital. Four patients in group A and 21 in group B had had one or more attacks of jaundice preceding the attack present during this hospitalization. In 2 instances in each group these earlier attacks had been more than five years before. In the remaining 2 in group A and 19 in group B the previous attacks had been within a five year period, the majority during the year preceding hospitalization. On the other hand, in one third of the patients in group A and in over one half of the patients in group B the initial attack of jaundice was either a part of the illness which brought the patient to the hospital or developed after he entered the hospital.

TABLE 3.—*Physical Observations*

	A	B
Total	57	86
Liver palpable	18	75
Spleen palpable	7	16
Spider angiomas	1	33
Ascites	47	67
Esophageal Varices	13	25
(Deaths in group with varices)	(11)	(9)
Jaundice	23	69
(Terminal only)	(16)	(23)

Most striking is the increased incidence of jaundice in the second five year period (*B*) as contrasted with the first five year (*A*) group. This contrast in incidence applies both to the patients who had had earlier attacks and to those in whom jaundice developed for the first time as part of the hospitalizing illness. The recovery rate in the presence of jaundice was far greater in the second than in the first five year period. Of 18 patients in group A in whom jaundice appeared for the first time as part of the hospitalizing illness, 16 died—that is, the jaundice was part of the terminal picture. Of 46 patients in group B whose initial jaundice coincided with hospitalization only 23 died and 23 recovered. This suggests an incidence of recovery from active hepatic disease considerably greater in the second period of five years than in the first.

TABLE 4.—*Jaundice*

	A 1936 to 1940	B 1941 to 1944
Jaundice Preceding; without attack during admission	1	2
Jaundice on or during admission		
+ 1 attack more than 5 years ago	1	1
+ several attacks more than 5 years ago	1	1
+ 1 attack within 5 years	1	14
+ several attacks within 5 years	1	5
Transitory (no previous attacks)	2	23
Terminal (no previous attacks)	16	23
Total	23	69

What is the significance of this increasing frequency of jaundice? And why does it now appear to be a less ominous sign in cirrhosis than it was in former years?

Some information on these questions is revealed by a study of the livers which have been examined histologically. In our series there were several cases of fatty cirrhosis and of Laennec's cirrhosis accompanied by regressive changes in the cells of the liver. Data on the cases in which pathologic examination was performed are summarized in tables 5 and 6. In all the cases diagnosed as fatty cirrhosis the fatty changes were prominent, whereas the cirrhosis was of an early type.

In listing fatty cirrhosis as a heading separate from Laennec's cirrhosis we have taken cognizance of Connor's concept, which has been well summarized by Karsner [5] as follows:

> Connor supposes that there are three stages: (1) acute fatty liver, attributable to alcoholism, (2) early but definite progressive fibrosis and (3) a nodular cirrhosis with a reduction in size that is not likely to be marked. His theory is that the accumulation of fat operates mechanically to cause collapse of sinusoids and pressure on peripheral cells. Consequently there is anoxia of the parenchymal cells with atrophy and in acute cases a fatty necrosis. Proliferation of connective tissue cells begins in the sinusoids near the periphery of the lobule; even though conspicuous in the portal spaces the connective tissue does not grow out from them. A delicate reticulum forms around the degenerate parenchymal cells. This is followed by multiplication of fibroblasts. Fibrous strands are formed which connect collapsed sinusoids and communicate with portal spaces. As this progresses there is "some attempt at regeneration of bile ducts and liver lobules." With improved diet, fat disappears and there is the "familiar quiescent, fibrotic, now somewhat shrunken, nodular liver of alcoholic cirrhosis." That Connor's theory of pathogenesis is correct in all details is open to serious doubt, but his observations, together with the experimental work in which Chaikoff shared, give reasons for assuming that fatty cirrhosis is in certain cases an entity and not merely a Laennec's cirrhosis in which fat has been deposited.

TABLE 5.—*Pathologic Examinations*

Group	No. of Deaths	No. of Autopsies	No. of Biopsies
A	46	19	3
B	48	22	4

TABLE 6.—*Pathologic Diagnosis*

	Group A	Group B
Laennec's cirrhosis	22	18
Cirrhosis and hemochromatosis	..	1
Toxic cirrhosis	..	1
Fatty cirrhosis	..	1
Fatty Laennec's cirrhosis with acute damage to liver cells	..	5

Fatty cirrhosis is probably a subtype of Laennec's cirrhosis, but it is convenient for purposes of emphasis to group together the cases in our alcoholic cirrhosis series in which the fatty deposits were more prominent than was the cirrhosis. We hope at a later date to compare these observations with those in the fatty livers of chronic alcoholic addicts who have died of nonhepatic causes.

That several autopsies revealed livers with maximal fat accumulation but only early cirrhosis should be emphasized. This emphasis is necessary because the clinical picture in these patients was one of decompensated cirrhosis with ascites. Ascites, esophageal varices and jaundice were frequently seen. This clinical picture of decompensated cirrhosis may be misleading. It need not signify that the patient has a scarred, shrunken hobnail liver in which the changes are irreversible. Ascites has been reported by Lucké [6] in acute epidemic hepatitis.

The jaundice and ascites may be the result of fat accumulation, hepatocellular degeneration and lowered levels of albumin in the blood. On adequate treatment such states may be reversible. We have at times a histologic basis for hope. This provides a logical foundation for the improved prognosis which has followed employment of the Patek regimen.

In several cases regressive changes in the liver cells were observed. These regressive changes varied in degree. In some instances they were not more pronounced than those seen in an active form of Laennec's cirrhosis without jaundice. In other cases, however, the degree of regressive change associated with jaundice was diagnosed by the pathologist as cirrhosis with a superimposed hepatitis.

Because of the obvious difference so often seen between toxic cirrhosis and Laennec's cirrhosis there is a logical tendency on the part of many to classify these as totally different pathologic processes. The frequency of jaundice and the occurrence of regressive changes in the liver cells in our series plus the evidence of reversibility of the clinical picture on more adequate treatment raises these questions: To what extent will acute or recurrent attacks of hepatitis produce Laennec's cirrhosis? How much does recurring jaundice on the basis of liver cell damage in an already established fatty, or Laennec's, cirrhosis influence the clinical course of the disease and the pathologic picture of the liver? A purely hypothetical question is whether acute epidemic hepatitis may be one of the factors causing further permanent damage in an already susceptible liver. The last question is raised because epidemic hepatitis has been so much commoner in recent years and because in our series a history of attacks of jaundice preceding the hospitalizing attack was obtained four times more frequently in the second than in the first five year period. A case history (case 5) is reported in which there is some possibility that an early attack of acute hepatitis might have been of etiologic significance in the later development of Laennec's cirrhosis.

REPORT OF CASES

The histories and pathologic data of 5 patients who manifested cirrhosis accompanied by acute degeneration of the liver cells are summarized herein. It is noteworthy that in contrast to the series as a whole, 4 of these 5 were women; 3 of the 5 were alcoholic addicts.

CASE 1.—M. P., a white woman aged 33, was admitted April 24, 1945; she had consumed 1 pint (473 cc.) of whisky a day for two or three years. There was a history on admission of hematemesis in 1943. She had vomiting and anorexia for one year and jaundice for two months; it had been severer the past month, and she had pains in her arms and legs for one month. Physical examination revealed jaundice (6.5 to 13.2

5. Karsner, H. T.: Morphology and Pathogenesis of Hepatic Cirrhosis, Am. J. Clin. Path. **13**: 569, 1943.

6. Lucké, B.: The Pathology of Fatal Epidemic Hepatitis, Am. J Path. **20**: 471, 1944.

van den Bergh units); anemia (hemoglobin 8.6 Gm., red blood cell count 1 million); many spider angiomas; enlargement of the liver 5 fingerbreadths below the costal margin, and a red tongue. There were bile and urobilin in the urine. Death occurred May 10, 1945. Autopsy revealed acute hepatocellular damage occurring in a fatty cirrhosis; jaundice; enlarged spleen; ascites; bilateral hydrothorax, and esophageal varices.

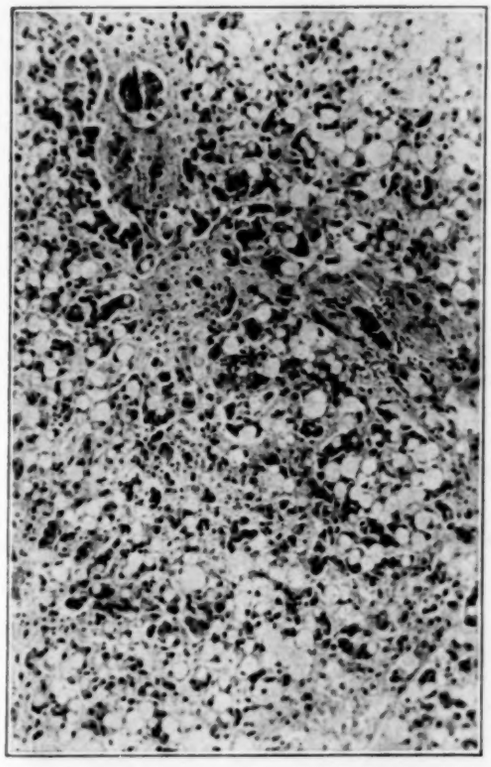

Fig. 1.—Fatty liver with cirrhotic changes.

CASE 2.—M. A., a Negro woman aged 26, was admitted May 15, 1944. She died May 16, 1944. She had consumed 1 quart (946 cc.) of wine a day for five years. There was a history of swelling of the abdomen for one month, swelling of the ankles for five days, jaundice for several days and diarrhea with tarry stool for five days. On physical examination the temperature was 100.4 F. There was lethargy, jaundice, pallor, ascites and enlargement of the liver 4 fingerbreadths below the costal margin. Autopsy revealed portal cirrhosis with decided fatty changes, an acute form of damage to the liver cells, jaundice, ascites, esophageal varices, one gallstone and early biliary nephrosis.

CASE 3.—C. H., a white woman aged 55, was admitted Dec. 17, 1942. She denied addiction to alcohol. There was a history of intermittent jaundice and indigestion for seven years. An attack of recurrent jaundice with pain in the right upper quadrant of the abdomen and in the back, nausea and emesis had persisted for two weeks prior to admission. Physical examination showed jaundice (6.7 van den Bergh units); the liver was enlarged. The Wassermann test was negative. The total protein concentration was 6.6 mg. per hundred cubic centimeters. The prothrombin time was 16 seconds with a control of 15 seconds. An exploratory laparotomy revealed a normal extrahepatic biliary tract. The biopsy report was as follows: "There is an extensive fatty metamorphosis present. The lobular pattern of the liver is giving way to pseudolobulation brought about by beginning fibrosis in the periportal spaces. Liver cells on the peripheral parts of lobules show less fat. Apparently superimposed on the fatty liver is an acute liver cell damage. Jaundice is present in the liver cells, with thrombi in the biliary canaliculi. There is decided interstitial inflammation with round cells and neutrophils. The impression is fatty change with early fat cirrhosis showing superimposed so-called acute hepatitis."

CASE 4.—D. H., a white woman aged 46, was admitted Oct. 22, 1943. She denied alcoholism, syphilis or dietary deficiency. The Wassermann test was negative. There was a history of jaundice for one week with chills and fever and hematemesis. There had been no previous attacks of jaundice. Physical examination showed jaundice (27, 7, 25 van den Bergh units) and hepatomegaly. The spleen was not palpable; there were spider angiomas and ascites. The total protein was 5 mg. and the urea nitrogen 12 mg. per hundred cubic centimeters. The prothrombin time and control time were both 15 seconds. The hemoglobin level was 8.3 Gm., the red blood cell count 2,630,000. The patient ran a low grade fever for three months. She died March 22, 1944. Autopsy revealed acute diffuse degeneration of liver cells on the basis of a fatty liver (early portal cirrhosis). Jaundice and acute splenitis were apparent. Histologic study (figs. 1 and 2) disclosed in low and high power the fatty liver, the liver cell degeneration and the periportal cirrhosis.

CASE 5.—M. M., a white man aged 55, was close to death when admitted in 1944. He had been a known alcoholic addict for thirty-four years. He consumed from 2 to 3 gallons (7.5 to 11.3 liters) of beer per day plus whisky. There was no evidence of syphilis. At the first admission, April 25, 1925, there were jaundice, peripheral neuritis, palpable liver and clay colored stools. The diagnosis was catarrhal jaundice. An outpatient department admission in 1926 recorded jaundice and edema. There were hospital admissions in 1936 and in 1940 for fractures. No jaundice was apparent, and the liver was not palpable. In 1941 the patient had jaundice. A hospital admission Nov. 29, 1942 was for alcoholism. At this time examination showed jaundice (7 van den Bergh units); the liver was slightly palpable, the spleen was not palpable. Other symptoms were tremor, achlorhydria and hyporeflexia; the patient had anemia (hemoglobin 12.2 Gm.) and leukopenia (white blood cell count 2,900, with polymorphonuclears 41 per cent, lymphocytes 48 per cent and monocytes 11 per cent). The last admission was Dec. 30, 1943, for hematemesis and melena. Physical examination showed jaundice, liver palpable, spleen not palpable, ascites, spider angiomas and ecchymoses of face, extremities and abdomen. Bronchopneumonia developed and the patient died Jan. 24, 1944. Autopsy disclosed Laennec's cirrhosis, acute damage to the liver cells; acute interstitial nephritis; bronchopneumonia, and hemorrhagic diathesis.

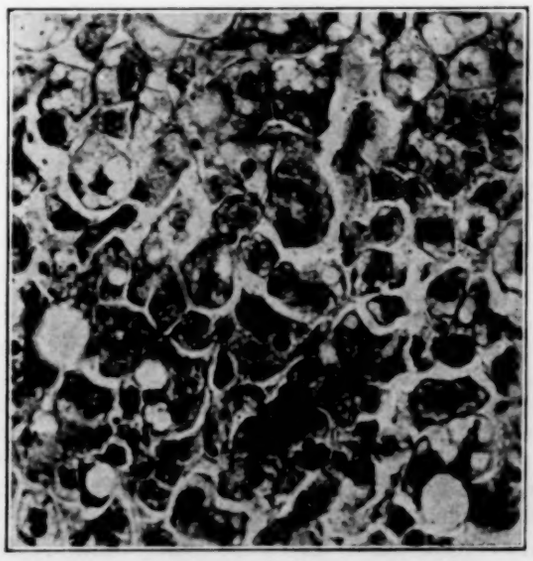

Fig. 2.—Hepatocellular regressive changes.

COMMENT

The first 4 cases showed fatty portal cirrhosis with acute hepatocellular degeneration. The third case is of interest because of the absence of alcoholism and the presence of a long history of jaundice (seven years).

The fourth patient likewise gave no history of alcoholism. She also denied dietary deficiency, but in the light of the low serum protein (5 mg. per hundred cubic centimeters) the reliability of her history is questionable. Figures 1 and 2, low and high power views of the liver (case 5), show the fatty changes, the hepatic cell degeneration and the periportal connective tissue found in these patients. The degree of cirrhosis in the fourth case was the least of the 3, although the degree of fatty change and acute cellular damage resembled that in the other 2 cases. In case 5 the patient was an alcoholic addict under observation for twenty years who was originally admitted in 1925 with a diagnosis and clinical picture of acute catarrhal jaundice or acute hepatitis, with recurrence of jaundice the following year. After this he was free of evidence of hepatic disease for fifteen years. During these years he was observed twice as the result of hospitalization for fractures. At the end of this period there developed the characteristic signs of decompensated cirrhosis, and he died. Laennec's cirrhosis and acute hepatic cellular damage were found at autopsy.

SUMMARY

An analysis of 143 cases of decompensated Laennec's cirrhosis, chiefly in persons with chronic alcoholism, is presented. Of these, 57 were seen in the first five year period, 1936 to 1940, and 86 in the second five year period, 1941 to 1945. During the 1941 to 1945 period a high protein, high vitamin, low fat diet was employed. The mortality in the latter period was three-fourths that of the former, and the survival time of patients in the latter group was two to four times that of patients in the former group.

The incidence of clinical jaundice in the earlier group was half that observed in the later group. In all but 3 instances the jaundice was a part of the illness for which the patient was hospitalized. There was a history of one or more attacks of jaundice preceding the attack associated with hospitalization in 4 patients in the first and in 21 patients in the second five year period.

All the patients who came to autopsy or were biopsied (22 and 26 in groups A and B, respectively) showed portal cirrhosis, save 1 who manifested a toxic cirrhosis. The cases of several patients who showed in addition decided fatty and degenerative changes in the liver cells are reported. One of these had been followed for twenty years between the attack of "catarrhal jaundice" and the appearance of the terminal decompensated cirrhosis.

That jaundice may be a manifestation of damage to liver cells is suggested by the fact that approximately one fourth of the jaundiced cirrhotic livers studied histologically showed excess fat and acute damage to hepatic cells.

In consideration of these fatty and regressive changes, of the increased frequency of jaundice and of the improved response to therapy, two questions have been raised:

1. Can acute epidemic hepatitis or recurring attacks of hepatitis play any etiologic role in the development of Laennec's cirrhosis?

2. How much does recurring jaundice on the basis of liver cell damage in an already established cirrhosis influence the clinical course of the disease and the pathologic condition of the liver?

NEEDLE BIOPSY OF THE LIVER

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Needle biopsy of the liver is a means of securing a strip of hepatic tissue for histologic examination by a relatively simple procedure that can be performed at the patient's bedside. The idea is not new. It was first suggested in 1895.[1] Although a few investigators in Europe employed the method, it received little attention until 1939. Since then there have been many reports on its application. Table 1 lists the references to the literature that have been examined.

In addition to the references listed, other series of cases as yet unpublished have been made known to me. Iversen[2] in Copenhagen, Denmark, states that over 600 biopsies have now been performed in his clinic. Davis[2] in New Orleans has recently completed a series of 96 cases; Schiff[2] and his co-workers in Cincinnati have performed 60 such examinations, and Ducci[2] in Santiago, Chile, has done 62.

TABLE 1.—*Needle Biopsy of the Liver: References in the Literature*

Author	Country	Year	No. of Biopsies
Lucatello [1]	Italy	1895	Not stated
Schupfer, F.: Semaine méd. **27**: 229 (May 15)	Italy	1907	40
Bingel, A.: Verhandl. d. deutsch. Gesellsch. f. inn. Med. **35**: 210	Austria	1923	100
Olivet, J.: Med. Klin. **22**: 1440 (Sept.)	Austria	1926	140
Waldenström, H.: Acta chir. Scandinav. **63**: 479	Sweden	1928	30
Frola, E.: Il puntato epatico nella diagnosi delle malattie del fegato, Rome, Luigi Pozzi	Italy	1935	66
Huard, P.; May, J., and Joyeaux, B.: Ann. d'anat. path. **12**: 1118	France	1935	163
Iversen and Roholm [3]	Denmark	1939	140
Baron [9]	United States	1939	47
Kofler, W.: Wien. Arch. f. inn. Med. **34**: 332	Austria	1940	100
Tripoli and Fader [10]	United States	1941	14
Chiray, Fiessinger and Roux [21]	France	1941	41
Roholm, Krarup and Iversen [8a]	Denmark	1942	297
Axenfeld and Brass [8b]	Germany	1943	45
Hatieganu, Spârchez, Radu and Macavei [8c]	Austria	1943	45
Van Beek and Haex [8d]	Holland	1943	200
Dible, McMichael and Sherlock [5]	England	1943	61
Sherlock [8e]	England	1945	264
Hoffbauer [14]	United States	1945	65
Gillman and Gillman [15]	South Africa	1945	500
Bierwaltes and Mallery [16]	United States	1946	30
Total			1,139

The method first described by Iversen and Roholm[3] in Copenhagen has been widely employed. The information gained by application of this method has been noteworthy. The reports of Roholm and Iversen[4] and of Dible, McMichael and Sherlock[5] on the pathology of infectious hepatitis are examples. These remarkable studies have furnished a basis for better understanding of this disease. Krarup and Roholm[6] have demon-

Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

1. Lucatello, L.: Sulla puncture del fegato a scopo diagnostico, in Lavori del congressi di medicina interna, Rome, 1895, p. 327.
2. Personal communication to the author.
3. Iversen, P., and Roholm, K.: On Aspiration Biopsy of the Liver, with Remarks on Its Diagnostic Significance, Acta med. Scandinav. **102**: 1, 1939.
4. Roholm, K., and Iversen, P.: Changes in the Liver in Acute Epidemic Hepatitis (Catarrhal Jaundice) Based on 38 Aspiration Biopsies, Acta path. et microbiol. Scandinav. **16**: 427, 1939.
5. Dible, J. H.; McMichael, J., and Sherlock, S. P. V.: Pathology of Acute Hepatitis, Aspiration Biopsy Studies of Epidemic, Arsenotherapy, and Serum Jaundice, Lancet **2**: 402 (Oct. 2) 1943.
6. Krarup, N., and Roholm, K.: Development of Cirrhosis of the Liver After Acute Hepatitis, Elucidated by Aspiration Biopsy, Acta med. Scandinav. **108**: 306, 1945.

strated the transition of hepatitis to cirrhosis by means of serial biopsies.

Biopsy of the liver has afforded my associates and me an opportunity to correlate functional changes with the histologic changes in some instances.[7] Increased interest in the study of hepatic disease has been aroused, and more accurate diagnoses have been made possible by the addition of biopsy methods to laboratory studies.

METHODS OF NEEDLE BIOPSY

Various methods have been suggested for this procedure. All employ local infiltration of procaine hydrochloride as the anesthetic agent. A hypodermic injection of morphine is usually given thirty minutes before the puncture. It is not always necessary. A fairly large bore needle is inserted into the liver, and a small plug of tissue is obtained. The specimen is usually from 1 to 3 cm. in length and approximately 1 to 2 mm. in width. The strip of tissue is immediately fixed in a suitable agent and later imbedded in paraffin and sectioned. The strip of tissue is admittedly small; figure 1 shows the average size obtained. By careful handling, however, one can apply several types of stains. A remarkable amount of information can often be obtained. The strip may contain anywhere from eight to fifteen lobules of the liver cut at various angles. This is sufficient for diagnostic purposes, especially in diffuse disorders such as hepatitis and cirrhosis.

Intercostal approach to the liver

Iversen and Roholm [8] described an aspiration method for needle biopsy of the liver that has been used by many investigators.[8] The patient is placed in the supine position. The site of insertion of the needle is the ninth intercostal space in the posterior axillary line on the right side. After preliminary procaine hydrochloride infiltration a small cut is made in the skin at this site. The patient is instructed to exhale completely and then refrain from inhaling. A special needle containing a sharp stylet is employed. It is advanced through the pleural space and diaphragm and into the substance of the liver for a distance of several centimeters. The stylet is removed and a syringe is attached to the needle; suction is then applied. By advancing the needle with a slight rotary motion for a distance of 2 cm. a plug of tissue is cut and aspirated. The needle is removed and a small dressing is applied. Since the needle is passed between the ribs, it is necessary to work rapidly; the patient should fix his chest in complete expiration during the procedure. The instrument used is a needle 18 cm. in length and 2 mm. in width. The cutting edge of the needle is not the usual hypodermic bevel type but has, rather, a sharp serrated edge designed to cut out a small cylinder of tissue as it is pushed forward with a rotary motion. Sherlock,[8e] who has had an extensive experience with this method, employs a needle 1 mm. in diameter and 15 cm. in length.

Subcostal approach to the liver

Baron [9] in 1939 reported aspiration biopsy of the liver and suggested that the liver be entered through the anterior abdominal wall, passing below the costal margin on the right side. When the liver is enlarged the needle can be inserted at the right midclavicular line. Baron stated that "in the absence of hepatomegaly, aspiration can be done safely to the right of the epigastrium, immediately below the costal margin and in the general direction of the lower portion of the right axilla." Because of the potential danger, Baron cautioned against the insertion of a biopsy needle between the ribs. He pointed out that the movement of the liver during respiration might result in a tear of the parenchyma of this vascular organ. While the hemorrhage that results from a straight needle puncture wound in the liver has in my experience been slight, I would agree that appreciable bleeding might occur from a linear tear.

In 1941 Tripoli and Fader [10] reported needle biopsy of the liver by subcostal approach. Instead of aspiration they employed the "Vim"-Silverman [11] needle. This ingenious device was described by Silverman [12] in 1938 for use in tumor biopsy. Mention of its application for liver biopsy is made in the report of Tenophyr and Silverman.[13]

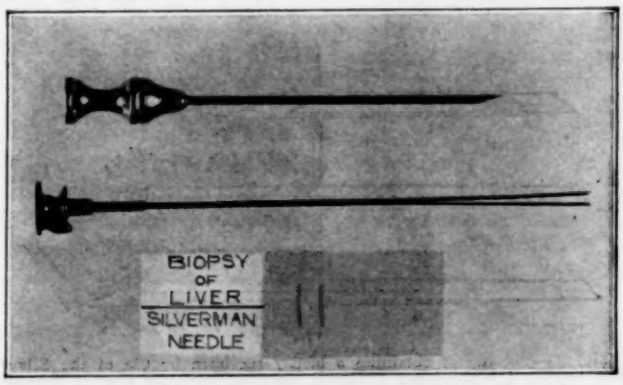

Fig. 1.—The "Vim"-Silverman needle and a microscopic slide showing the usual size of the liver biopsy obtained.

I have employed the Silverman needle (fig. 1) for biopsy of the liver.[14] I limited its employment to patients with hepatomegaly. The usual site of entrance has been the right midclavicular line just below the costal margin. The needle is a 14 gage needle having a hypodermic bevel tip. The biopsy is secured by a smaller needle that is inserted through the 14 gage needle. The inner needle is split longitudinally down the hub. This cuts a small cylinder approximately 2 mm. in width and from 2 to 3 cm. in length. The plug of tissue is trapped between the two prongs and is cut off from its point of attachment by advancing the outer needle over the inner one, the latter being held stationary (fig. 2). Both needles are simultaneously withdrawn. This needle has proved satisfactory for the purpose of biopsy of the liver. Initially, failures

7. Hoffbauer, F. W.; Evans, G. T., and Watson, C. J.: Cirrhosis of the Liver with Particular Reference to Correlation of Composite Liver Function Studies with Liver Biopsy, M. Clin. North America **29**: 363 (March) 1945.

8. (*a*) Roholm, K.; Krarup, N., and Iversen, P.: Aspiration-biopsie der Leber mit einer Uebersicht über die Ergebnisse bei 297 Biopsien, Ergebn. d. inn. Med. u. Kinderh. **61**: 635, 1942. (*b*) Axenfeld, H., and Brass, H.: Klinische und bioptische Untersuchungen über den sogenannten Icterus catarrhalis, Frankfurt. Ztschr. f. Path. **57**: 147, 1942. (*c*) Hatieganu, I.; Sparchez, T.; Radu, P., and Macavei, L.: Value of Liver Puncture in Diagnosis of Various Diseases of the Liver, Wien. klin. Wchnschr. **56**: 21 (Jan. 15) 1943. (*d*) Van Beek, C., and Haex, A.: Aspiration-Biopsy of the Liver in Mononucleosis Infectiosa and in Besnier-Boeck-Schaumann's Disease, Acta med. Scandinav. **113**: 124, 1943. (*e*) Sherlock, S.: Aspiration Liver Biopsy: Technique and Diagnostic Application, Lancet **2**: 397 (Sept. 29) 1945. (*f*) Dible, McMichael and Sherlock.[6]

9. Baron, E.: Aspiration for Removal of Biopsy Material from the Liver, Arch. Int. Med. **63**: 276 (Feb.) 1939.

10. Tripoli, C., and Fader, D.: The Differential Diagnosis of Certain Diseases of the Liver by Means of Punch Biopsy, Am. J. Clin. Path. **11**: 516 (June) 1941.

11. MacGregor Instrument Company, Needham 92, Mass.

12. Silverman, I.: A New Biopsy Needle, Am. J. Surg. **40**: 671 (June) 1938.

13. Tenophyr, J., and Silverman, I.: The Importance of Biopsy in Tumor Diagnosis, Radiology **36**: 57 (Jan.) 1941.

14. Hoffbauer, F. W.: Needle Biopsy of the Liver, Journal-Lancet **65**: 246 (July) 1945.

occurred in 15 of the 65 cases [14] in which the method was used. These were mainly due to unfamiliarity with the technic and hesitancy to insert the needle a second time if the first attempt failed. Originally the outer needle was introduced with a snug-fitting stylet. When this had penetrated the liver, as noted by movement coincident with respiration, the stylet was removed and the inner needle inserted. This caused some delay and increased the length of time that the needle remained in the liver. At present the stylet is not used. The instrument is first assembled with the inner needle retracted back of the tip. The skin at the point of introduction is incised with a size 11 Bard-Parker blade. Both needles are then introduced, and the biopsy specimen is secured. If one is careful to infiltrate procaine down to the peritoneal surface and to allow a few moments for the anesthesia to take effect, the procedure is relatively painless.

In 1945 Gillman and Gillman [15] reported a large series of aspiration needle biopsies of the liver. They devised a special piece of apparatus for the purpose, one which reduces the manipulations to a minimum. This needle is inserted "in the apex of the angle between the xiphisternum and the right costal margin." According to these authors, the needle is directed slightly upward and to the left until the surface of the liver

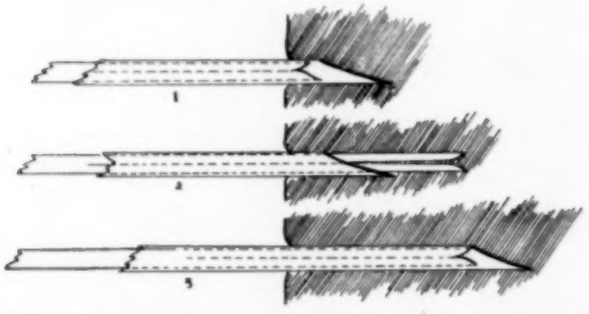

Fig. 2.—Technic of obtaining a biopsy specimen by use of the Silverman needle: (1) the inner needle is retracted until the liver is entered; (2) it is then advanced and a strip of tissue cut; (3) the outer needle is then advanced over the inner, and the tissue fragment is trapped.

is reached. Gillman and Gillman have reported a number of valuable observations [16] relative to nutritional changes in the liver. The needle employed by Gillman and Gillman is designed to obviate the removal of the stylet and the attachment of the syringe after the substance of the liver has been entered. The stylet has a spiral groove; it is attached to the plunger of the syringe. The instrument is so constructed that the needle with the stylet in position can be pushed through the tissues; as the needle is directed into the liver, the stylet is withdrawn and suction is applied in a single movement. They found that it was desirable to have the end of the needle beveled like a hypodermic needle rather than with the tip, as used by Iversen and Roholm.

The Roth-Turkel needle [17] has been successfully employed by Davis [2] and by Bierwaltes and Mallery.[18] This needle is widely used in this country for biopsy purposes. It has a serrated cutting edge. The prime feature of this instrument is that the cutting needle is contained within another needle which has a long bevel. This facilitates the introduction of the needle into the liver. The biopsy is taken by advancing the longer inner needle through and beyond the tip of the outer one. Davis states that in his experience this needle is more satisfactory than the Silverman needle because the specimen obtained is larger. Suction is usually employed when the Roth-Turkel needle is used.

DANGERS AND COMPLICATIONS

Raby [19] has recently discussed the complications of liver biopsy by the needle method. He described 2 fatalities, both in elderly patients. The danger of needle biopsy was the subject of a recent editorial comment in THE JOURNAL.[20] Roholm, Krarup and Iversen [8a] prepared an extensive review of the subject in their report of 297 biopsies. As complications they listed the following: (1) pain, (2) damage to neighboring organs, (3) implantation of tumor cells in the needle track, (4) air embolus, (5) infection, (6) bile peritonitis and (7) hemorrhage.

Pain following the biopsy is said to occur in about 5 per cent of cases in which the Iversen and Roholm technic is employed. The discomfort does not persist for more than a day. In my experience, pain after the biopsy has not been a prominent feature. In a few instances signs of local peritoneal irritation have been observed. This has been attributed to the presence of a small amount of blood that escaped from the puncture site.

Damage to neighboring organs is a potential danger, especially when the subcostal or anterior approach is employed. I have heard of 1 death in this country from peritonitis after an attempted needle biopsy of the liver. Autopsy disclosed a perforation of the colon. In this case, which was not reported, the mistake lay in the attempt to obtain the biopsy in a situation in which the liver was not easily palpable below the costal margin. Baron [9] contended that needle biopsy could be performed safely by the anterior subcostal approach in the absence of hepatic enlargement. Chiray, Fiessinger and Roux [21] limited their attempts to patients with palpable liver. Davis [2] also selects his cases on this basis.

The complications of implantation of tumor cells in the needle track, air embolus and infection can largely be avoided by careful technic. Needless to say, the entire procedure must be performed with strict aseptic technic. In diseases such as cholangitis, in which one suspects intrahepatic suppuration, needle biopsy is, of course, hazardous and should not be attempted.

Leakage of bile into the peritoneal cavity is a potential danger, especially in the presence of obstruction of the biliary tract. In those instances of cancer of the biliary tract in which my associates and I have performed biopsies no such complication has occurred. The danger of perforation of the gallbladder must be considered.

The chief danger of any biopsy of the liver is hemorrhage. This has been the cause of most of the reported fatalities. The procedure should not be attempted unless one has at hand facilities for blood transfusion. The patient should be kept at rest in bed for twenty-four hours, and the pulse rate and blood pressure levels should be followed at intervals as advocated by Sherlock.[8e] Needle biopsy of the liver

15. Gillman, T., and Gillman, J.: A Modified Liver Aspiration Biopsy Apparatus and Technique, with Special Reference to Its Clinical Applications as Assessed by 500 Biopsies, South African J. M. Sc. **10**: 53, 1945.
16. Gillman, T., and Gillman, J.: Hepatic Damage in Infant Pellagra, J. A. M. A. **129**: 12 (Sept. 1) 1945.
17. Roth, A., and Turkel, H.: Technique of Prostatic Biopsy, J. Urol. **51**: 66 (Jan.) 1944.
18. Beirwaltes, W. H., and Mallery, O. T.: Clinical Experience with a Trephine Needle, Univ. Hosp. Bull., Univ. Michigan **12**: 13, 1946.
19. Raby, K.: Complications and Dangers of Liver Biopsy, Nord. med. (Hospitalstid.) **24**: 2161 (Dec. 8) 1944.
20. Hemorrhage from Puncture Biopsy of the Liver, editorial, J. A. M. A. **129**: 681 (Nov. 3) 1945.
21. Chiray, M.; Fiessinger, N., and Roux, M.: La punction biopsie du foie, Presse méd. **49**: 785 (July 22) 1941.

should, therefore, be limited to hospitalized patients. The bleeding and clotting and prothrombin time are routinely checked before the method is employed. The amount of blood that escapes from the puncture wound of the liver is not great. In instances in which the puncture was made during peritoneoscopy there was opportunity to observe the bleeding. It seldom lasted for more than thirty to sixty seconds and consisted of a slow trickle of blood down the surface of the liver. In a few instances of chronic passive congestion of the liver bleeding from the site of the puncture was more profuse but not alarming. It might be argued that the tense pneumoperitoneum used during peritoneoscopy has an inhibiting influence on the bleeding.

One serious episode of intraperitoneal bleeding occurred among the cases in which direct needle biopsy was performed at the bedside of the patient. This has been previously reported.[14] The bleeding was found at operation to be coming from a damaged artery beneath the left lobe of the liver and not from the liver itself. The operator passed the needle completely through the thin edge of the left lobe.

There have been a total of 12 deaths ascribed to needle biopsy of the liver in the literature reviewed (table 2). Sherlock [8e] stated the fatality rate as 0.67 per cent. Iversen [2] places the figure as somewhat below 0.5 per cent. It is obvious, then, that needle biopsy entails some risk. It should not be performed indiscriminately. It can furnish so much valuable information, however, that its continued use is believed to be justified in selected cases.

TABLE 2.—*Needle Biopsy of the Liver: Reported Deaths Following the Procedure*

Author	Year	Deaths	No. of Biopsies
Bingel	1923	2	100
Olivet	1926	2	140
Baron	1939	1	40
Roholm, Krarup and Iversen	1943	2	297
Sherlock	1945	2	264
Raby	1945	2	Not stated
Gillman and Gillman	1946	1	500
Total		12	

COMMENT

On the medical service of the University of Minnesota Hospitals, needle biopsy of the liver has been attempted in 80 cases since October 1942. These biopsies have been performed at the bedside, using the 3¾ inch (9.5 cm.) "Vim"-Silverman needs as previously described. The procedure has now been restricted to cases in which the liver is definitely enlarged and readily palpable below the costal margin. The method has been of great value in the clinical study of hepatic disease. It has often been of diagnostic aid, especially in parenchymal disorders, such as cirrhosis, hemochromatosis and amyloid disease.

The value of the procedure in the differential diagnosis of the jaundiced patient is an important consideration. The amount of tissue secured is small. The pathologist can usually differentiate obstructive jaundice from hepatitis, a situation in which the clinician often requires assistance. It must be admitted that there are times when such a differentiation will be difficult. This is particularly true if the jaundice is of long standing. Iversen [2] believes that the differentiation can be made with complete accuracy if the biopsy is secured in the first two weeks of jaundice.

In the presence of metastatic carcinoma in the liver the biopsy, performed at the bedside, is of value only if the needle happens to strike a metastatic nodule. This is a situation in which use of the peritoneoscope as an aid in securing the biopsy specimen offers a distinct advantage, since visualization of the surface of the liver is permitted.

NEEDLE BIOPSY OF THE LIVER DURING PERITONEOSCOPY

Some of my earlier experiences with needle biopsy of the liver combined with peritoneoscopy have been described.[7] Kalk, Brühl and Sieke [22] have employed a similar method using the Iversen-Roholm needle. Needle biopsy has now been performed in 50 cases of suspected hepatic disease that have been subjected to peritoneoscopic examination. Initially these were instances in which the liver was not enlarged and direct needle biopsy was therefore deemed unwise. Recently in nearly all instances in which a specimen of the liver for biopsy was desired, the patients have been examined with the peritoneoscope. This was done for purposes of evaluating the two methods.

One of the virtues of the direct needle biopsy has been its simplicity and the relative lack of discomfort which it produces. Peritoneoscopic examination is a much more formidable procedure. It must be done in an operating room. It requires the creation of a tense pneumoperitoneum. Patients usually have much more discomfort following this than they do after the simpler procedure. However, the advantages are great. One can visualize the surface of the liver. Often that alone is sufficient for diagnostic purposes, as for example when there are carcinomatous implants of the surface or when the liver is visibly cirrhotic.

One may well ask, why perform needle biopsy of the liver at the time of peritoneoscopic study when the Ruddock [23] instrument contains a biopsy forceps that may be employed without an additional puncture wound in the abdominal wall? There are two reasons. In my experience it has been difficult to secure biopsies with the forceps. Only when the lower edge of the liver was thin and sharp so that the biting jaws could cut the tissue at the inferior edge have I been able to get a satisfactory specimen. In most instances, particularly those in which the capsule appeared thickened, I have found it impossible to cut through the tissue. A more serious objection to the biopsy taken with a forceps has been the fact that the tissue is obtained from just beneath the capsule. The histologic structure close to the capsule is not always representative of the entire organ. The needle, on the other hand, secures a strip of tissue from a deeper level 3 to 5 cm. below the capsule and affords the pathologist a better opportunity for interpretation.

When the peritoneal cavity is distended with air for the peritoneoscopic examination, the liver falls away from the anterior abdominal wall (fig. 3). The "Vim"-Silverman needle is not long enough to reach the surface of the liver if it is inserted through the anterior abdominal wall just below the costal margin in the right midclavicular line. A longer needle has therefore been used and equipped with a spring guard, as shown in figure 4. The principle, that is, the longer inner split needle, is the same as that devised originally by Silverman. The spring guard has been added to check the

22. Kalk, H.; Brühl, W., and Sieke, W.: Die gezielte Leberpunktion, Deutsche med. Wchnschr. **69**: 693 (Oct. 1) 1943.
23. Ruddock, J. C.: Peritoneoscopy, South. Surgeon **8**: 113 (April) 1939.

progress of the outer needle over the inner, once the tissue plug has been cut. Without the guard, there is a tendency for the outer needle to advance too far beyond the inner one. There is a slight resistance to the passage of the outer needle over the two prongs of the instrument when the tissue plug is trapped within. The operator is apt to push too hard, and the needle then advances farther than is necessary. Deep penetration into the liver is dangerous. On the other hand, if the operator is too cautious and fails to advance the outer needle far enough, the plug of tissue may not be cut off. This has been responsible for some of the failures of this technic. The little spring guard, therefore, allows one to advance the outer needle just the required distance once the cylinder of tissue has been cut.

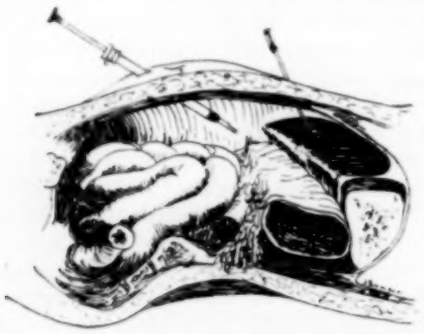

Fig. 3.—The needle biopsy performed in conjunction with peritoneoscopy: The insertion of a modified Silverman needle through a separately anesthetized site during peritoneoscopic examination permits the operator to visualize the entrance of the needle into the liver.

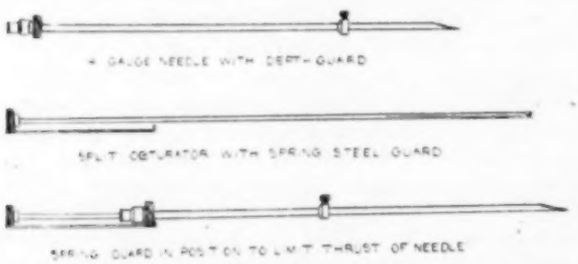
14 GAUGE NEEDLE WITH DEPTH GUARD
SPLIT OBTURATOR WITH SPRING STEEL GUARD
SPRING GUARD IN POSITION TO LIMIT THRUST OF NEEDLE

Fig. 4.—A needle 18 cm. in length and equipped with two guards is used in conjunction with peritoneoscopic examination for needle biopsy of the liver.

SUMMARY AND CONCLUSIONS

The literature pertaining to needle biopsy of the liver has been briefly reviewed. The methods employed by various investigators are discussed. The addition of the biopsy to the clinical study of hepatic disease has aroused new interest in the subject. Much valuable information on the histologic changes in the liver in such nonfatal conditions as hepatitis has been made available. The transition of infectious hepatitis to cirrhosis has been elucidated by this means.

The method is not without risk; the chief danger is hemorrhage. Needle biopsy of the liver should not be attempted unless one has adequate facilities for coping with the possible complications that may arise.

On the basis of personal experience, the anterior subcostal approach is considered to be a satisfactory one if the liver is definitely enlarged and easily palpable. In the absence of hepatomegaly, peritoneoscopic examination has been made and biopsy secured by means of a needle inserted through the anterior abdominal wall and guided into place while the liver is visualized. Under these circumstances the needle biopsy is believed to have some virtue over the customary forceps method.

"ALCOHOLIC CIRRHOSIS"

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The term "alcoholic cirrhosis" is at once misleading. It implies that alcohol produces a certain characteristic type of cirrhosis. This, of course, is not true. There is no gross pathologic or histologic type of cirrhosis that can be identified as alcoholic in origin. Alcoholic cirrhosis is generally accepted as being synonymous with portal cirrhosis, although the latter condition is frequently found in children and adults who have not even remotely had anything to do with alcohol, and despite the fact that in the great majority of alcoholic addicts, as far as is known, cirrhosis does not develop.

It is just a hundred years since Rokitansky stated that "granular liver is one of the most important, though in many respects and especially in reference to its pathogeny, one of the most enigmatical affections of the liver." While some progress has been made in recent years in the study of the pathogenesis of cirrhosis, its cause and mode of development continue to remain part of the mysteries of medicine.

Lest one become too enthusiastic about any of the currently suggested causes of cirrhosis, the status of the numerous theories that have been suggested from time to time in the past should be considered.

One of the earliest and most persistent theories is that concerning alcohol, which will be alluded to presently. Another deals with the intestinal bacteria, which were thought by Adami many years ago to be an important factor in causing cirrhosis because they could be cultured from cirrhotic livers and from the resulting ascitic fluid. Adami did not believe that bacteria were a constant factor in all cases, and he stipulated that before their invasion there must be intestinal irritation from alcohol, acid fermentation or some other agent. Some twenty years ago Longcope showed that lesions resembling those found in cirrhosis could be produced by anaphylactic shock, the result of repeated injection of egg white or other protein. This indicated that protein sensitization and intoxication might originate the disease. Opie and others showed that cirrhosis could be produced by bacterial infections combined with poisons such as chloroform that are toxic to the liver. At the moment it is being assumed that alcohol, in league with diets deficient in protein and certain vitamins, especially of the B group, and diets of low carbohydrate and high fat content are responsible for cirrhosis. Unfortunately, reference cannot be made at this time to all the excellent experimental and clinical studies on this phase of the subject. Of especial interest, however, is the work of Moon,[1] György and

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1. Moon, V. H.: Histogenesis of Atrophic Cirrhosis, Arch. Path. **13**: 691-706 (May) 1932; Experimental Cirrhosis in Relation to Human Cirrhosis, ibid. **18**: 381-424 (Sept.) 1934.

Goldblatt,[2] Connor and Chaikoff,[3] Patek and Post,[4] Jolliffe and Jellinek,[5] Fleming and Snell[6] and others.

In a number of cases attacks of acute and subacute hepatitis, be their causes of a virus, toxic or infectious nature, are thought to be forerunners of portal cirrhosis.

Finally, it is the belief of some students of the subject that disturbances of metabolism are at fault and that cirrhosis is the result of direct toxic affects combined with an allergic reaction (Jaffe[7]).

Ten years ago, on May 13, 1936, to be exact, Boles and Clark[8] presented before this section the results of an analysis of 4,000 autopsies studied at the Philadelphia General Hospital in an attempt to throw some light on the relationship of alcohol to cirrhosis of the liver. At that time we said regarding the role of alcohol, study of which was the primary purpose of the investigation: "It is quite evident from our observations that, contrary to prevailing opinion, alcohol cannot seriously be regarded as a specific cause of

TABLE 1.—*One Hundred and Forty-Two Cases of Portal Cirrhosis*

Year	Autopsies	Portal Cirrhosis	%
1942-1943	2,000	73	3.6
1945-1946	1,637	69	4.2
Total	3,637	142	3.9

TABLE 2.—*One Hundred and Forty-Two Cases of Portal Cirrhosis, Age and Sex Incidence*

Age	Male	Female	Total
20 to 29	1	1	2
30 to 39	6	5	11
40 to 49	15	15	30
50 to 59	20	11	31
60 to 69	21	12	33
70 to 79	12	15	27
80 to 89	4	3	7
90 to 99	0	1	1
Total	79	63	142
Ratio	1.25 to 1		

cirrhosis of the liver . . ." Furthermore, "As the lesion defined as portal cirrhosis occurs under influences unassociated with alcohol, we would suggest abandonment of the term alcoholic cirrhosis." In 1939 Connor[9] suggested that alcohol did not cause cirrhosis but that the combination of alcohol and a deficient diet which produced fatty changes in the liver eventually led to the disease. In 1940 Boles and Crew[10] reported the results of an investigation of 4,000 autopsies performed at the Philadelphia General Hospital and reached conclusions which were practically identical to those arrived at in the former study made at the same hospital in 1936.

The present analysis is based on the survey of 3,637 autopsies. Two thousand of them were performed in the period from Nov. 15, 1942 to Nov. 15, 1943, and 1,637 were performed during the period from Jan. 1, 1945 to Jan. 1, 1946. Only cases of portal cirrhosis were considered.

TABLE 3.—*One Hundred and Forty-Two Cases of Portal Cirrhosis, Race and Sex Ratio*

	Male	Female	Total
White	62	51	113
Negro	17	12	29
			142

Ratio: White to Negro, 3.89 to 1

In the 3,637 autopsies studied, 142 cases of portal cirrhosis based on histologic diagnosis were found—or 3.9 per cent (table 1). This is almost identically the same percentage as was found by Boles and Clark in a series of 4,000 autopsies, which was 3.75 per cent.

A study of the age distribution (table 2) shows that the greater number of cases of cirrhosis occur between 40 and 80 years of age, the peak being reached in those between 60 and 69 years of age. It is of interest that almost the same number of cases were observed in the fourth and fifth decades, in as much as ten years ago there were considerable fewer cases noted in these decades. This indicates that while the total number of cases of cirrhosis proved at autopsy has not appreciably increased in the past ten years, a significantly greater number of younger persons are showing evidence of the disease.

The ratio of males to females for all ages in the present group was 79 to 63, or 1.25 to 1. The ratio of males to females between 60 and 69 years of age was 1.7 to 1, whereas in those between 40 and 49 years of age it was 1 to 1. Previous sampling of the total number of persons autopsied at the hospital showed a ratio of males to females of 5 to 4 or 1.25 to 1.

TABLE 4.—*Accurate History of Alcoholism in Sixty-Four of One Hundred and Forty-Two Cases of Portal Cirrhosis*

Positive	50
Negative	14
	64
Unreliable	78
	142

Cirrhosis is still much commoner in the white race than in the Negro race, the ratio being 113 to 39, or 3.89 to 1 (table 3). The ratio of males to females is approximately the same for the two races. Previous samplings of the total number of persons autopsied at the hospital shows a ratio of total whites to Negroes of 1.6 to 1.

In 64 of 142 cases of cirrhosis, an accurate history concerning the use of alcohol was obtained (table 4).

2. György, P., and Goldblatt, H.: Observations on Conditions of Dietary Hepatic Injury (Necrosis, Cirrhosis) in Rats, J. Exper. Med. **75**: 355-368 (April) 1942.

3. Connor, C. L., and Chaikoff, I. L.: Development of Cirrhosis in Fatty Livers, Arch. Path. **25**: 761-762, 1938; abstracted from Proc. Soc. Exper. Biol. & Med. **39**: 356-359 (Nov.) 1938.

4. Patek, A. J., Jr., and Post, J.: Treatment of Cirrhosis of Liver by Nutritious Diet and Supplements in Vitamin B Complex, J. Clin. Investigation **20**: 481-505 (Sept.) 1941.

5. Jolliffe, N., and Jellinek, E. M.: Vitamin Deficiencies and Liver Cirrhosis in Alcoholism: Cirrhosis of Liver, Quart. J. Stud. on Alcohol **2**: 544-583 (Dec.) 1941.

6. Fleming, R. G., and Snell, A. M.: Portal Cirrhosis with Ascites: Analysis of Two Hundred Cases with Special Reference to Prognosis and Treatment, Am. J. Digest. Dis. **9**: 115-120 (April) 1942.

7. Jaffe, R.: General Considerations on Pathogensis: Syphilitic Aortitis, Myocarditis, Hepatic Cirrhosis, J. Lab. & Clin. Med. **29**: 139-149 (Feb.) 1944.

8. Boles, R. S., and Clark, J. H.: Role of Alcohol in Cirrhosis of Liver: Clinical and Pathologic Study Based on 4,000 Autopsies, J. A. M. A. **107**: 1200-1203 (Oct. 10) 1936.

9. Connor, C. L.: Fatty Infiltration of the Liver and Development of Cirrhosis in Diabetes and Chronic Alcoholism, Am. J. Path. **14**: 347-364 (May) 1938.

10. Boles, R. S., and Crew, R. S.: Observations on Chronic Alcoholism and Cirrhosis of Liver, Quart. J. Stud. on Alcohol **1**: 464-471 (Dec.) 1940.

In 50 cases it was definitely positive. Total abstinence was claimed by 14 persons. In the remaining 78 cases there was either no record of indulgence in alcohol, or the history concerning its use was questionable. It is significant that in younger persons with cirrhosis, namely those under 40 years of age, 9 of 13 admitted heavy drinking. In 3 the history was questionable, and in 1 abstinence was recorded.

A clinical diagnosis of cirrhosis of the liver was made in 50 of the 142 cases proved at autopsy (table 5). That a greater number of cases had not been diagnosed clinically was obviously due to the fact that the disease was in its earlier stages, when there was nothing definite to betray its presence. In 46 of the 50 cases clinically diagnosed, cirrhosis was recorded as the primary cause of death. In 33 of the 50 a positive history of alcoholism was obtained; in 3 others it was negative, and in 14 it was unreliable. Such figures tend to prove that alcohol cannot be absolved from contributing its part to the causation of cirrhosis in an indeterminate number of persons.

TABLE 5.—*Proved Clinical Diagnosis and Accurate History in Fifty Cases of Portal Cirrhosis*

Positive history of alcoholism	33
Negative history of alcoholism	3
Unreliable history of alcoholism	14
	50

TABLE 6.—*Jaundice and Ascites in One Hundred and Forty-Two Cases of Portal Cirrhosis*

			1946	1936
Jaundice	40	or	28.0%	30%
Ascites	54	or	38.0%	35%
Combined	24	or	16.9%	17%

As alcoholism is of such moment at the present time, it is unfortunate that a more careful history concerning its use in all patients, regardless of their disease, is not secured. If cirrhosis is suspected, inquiry is usually made concerning the use of alcohol. If alcoholism is suspected, one may be certain that a diligent search for cirrhosis will be made. Aside from this, relatively little if any attention is given to the matter.

Jaundice was observed in 40 of the 142 cases, or 28 per cent. Ascites occurred in 54 cases, or 38 per cent. Both jaundice and ascites occurred in 24 cases, or 16.9 per cent (table 6). The incidence of jaundice, ascites and the two together was strikingly close to that observed ten years ago. Jaundice at that time was noted in 30 per cent of cases; ascites in 35 per cent of cases and the two combined in 17 per cent of cases. Ruptured varices were noted in 15 cases, or 10.5 per cent.

In recent years the treatment of cirrhosis has been based on the deduction that nutritional deficiencies play a large part in its production. Considerable relief of symptoms, prolongation of life and even apparent cures, though the disease had reached the stage of decompensation and irreversibility, have been claimed by various proponents of such treatment. The results attained are not disputed, but the presumption that the disease is primarily a nutritional disorder can hardly be borne out by the facts. It is assumed that the diet of the chronic alcoholic is deficient in protein, carbohydrate and vitamins, that the storage of glycogen is diminished and that there occurs a fatty replacement of the liver cells. All this may be true, but, except that the liver of the person with alcoholism exhibits various degrees of fatty dystrophy, proof that such is the case is not available. The various studies that have been made concerning the diet of the alcoholic addict are far from convincing, principally because of the small number of persons examined and the relatively short period over which the dietetic survey was conducted.

When one tries to appraise this whole subject of cirrhosis in an unbiased manner, he gives ear to the statements of Karsner,[11] who expressed his opinion in an excellent monograph on the morphology and pathogenesis of the condition that a review of the morbid anatomy of cirrhosis is profitable because it serves to furnish anatomic criteria of recognition and diagnosis. Without such criteria experimental observations may be misleading and may even result in fallacious deductions. The significance of morphologic studies of disease in man may sometimes be overlooked in the fascination afforded by physiologic, chemical and other approaches to the problems of pathology. The principle of the positive identification of the disease in the experimental animal should apply to the investigation of any disease, be it hepatic cirrhosis or any other disorder.

With this in mind one may inquire, after all, how different is this chronic fibrosing disease of the liver, call it chronic hepatitis, atrophic cirrhosis or what you will, from chronic nephritis and other diseases whose pathogenesis is similar, whose eventual pathologic patterns are comparable and whose symptoms are subject to the same variations and environmental influences, and which follow through to the same inexorable termination?

Consider the parallel to nephritis, for example. An attack of acute nephritis may entirely subside or it may smolder, to be reactivated by an infection or some other aggravating influence. On the other hand, it may progress to chronic nephritis. In the case of nephritis, the same difficulty is encountered in nomenclature and classification of types, chiefly because the etiology is unknown. Furthermore, consider the striking similarity in the pathologic process of the two diseases—the early stages of nephritis with inflammatory changes; the later stages with parenchymal degeneration associated with proliferation and the deposit of fatty substances within the epithelial cells, and finally the stage of atrophy and scar formation.

When two such common disorders as nephritis and portal cirrhosis are so comparable in their course, one must ponder whether there are not common etiologic factors. In both diseases alcohol and nutritional deficiencies may play an important part in individual cases, but in the one no more than the other does the time seem ripe to attach specific etiologic significance to either of these influences.

In the case of portal cirrhosis, alcohol as well as chronic infection, toxemia, disturbances of metabolism, tissue susceptibility and, no doubt, central nervous sys-

11. Karsner, H. T.: Morphology and Pathogenesis of Hepatic Cirrhosis, Am. J. Clin. Path. **13**: 569-606 (Nov.) 1943.

tem influences, such as seem to occur in hepatolenticular degeneration, all play their role in the causation of the disease. In the light of our present knowledge, the disease might well be regarded as not essentially due to alcohol or any other known specific factor.

It would be unfortunate for the lay person to gain the impression that alcohol is blameless in the development of cirrhosis. Certainly it must be much to blame in given subjects. This being the case, it would behoove the members of the medical profession to discourage recent attempts to minimize the importance of alcohol as, if not a specific factor, at least a contributing or predisposing factor in the development of cirrhosis of the liver.

Finally, considering the nonspecific status of alcohol, the suggestion is made again, in the interest of scientific accuracy, that all reference to any type of cirrhosis as "alcoholic cirrhosis" be abandoned.

Rittenhouse Plaza.

NEW METHODS OF THERAPY IN CIRRHOSIS OF THE LIVER

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Cirrhosis of the liver is no longer a hopeless, incurable disease destined to progress until death intervenes. Recent reports [1] are rapidly accumulating evidence which shows that many patients with hepatic cirrhosis can improve, or recover as judged by clinical observations and laboratory tests, after treatment by the Patek regimen,[1a, b] with choline or with choline and cystine.[11] I have reported elsewhere a detailed analysis of the results of treatment in cirrhosis of the liver in a series of 62 patients studied at two year intervals [1j] over an eight year period of time. In this present paper the results and basis for the treatment of choice in cirrhosis are described and offered for trial by others.

METHODS OF TREATMENT

The treatment which I have adopted consists in the administration of methionine, 2 Gm. daily; choline chloride, 2 Gm. daily, a special liver extract prepared by the filtration and concentration of an aqueous liver solution containing vitamin B complex; a high protein (higher than heretofore advocated), low fat, moderate carbohydrate diet and frequent feedings of skimmed milk. To my knowledge this identical combination has not previously been reported for human cirrhosis of the liver, and its adoption is based on experimental and clinical evidence.[2]

This therapeutic regimen was adopted for two reasons: first, as is now well known, the experimental evidence obtained in animals indicates conclusively that choline and methionine are proven lipotropic agents in the prevention and alleviation of fatty cirrhosis of the liver in the experimental animal. The experimental evidence that has been amassed in cirrhosis of the liver and in cirrhosis due to alcoholism in human subjects indicates that cirrhosis is a form of nutritional deficiency disease, or, more specifically, a labile methyl-group deficiency disease.[3] It is also possible that cirrhosis of the liver may be due to a specific vitamin deficiency, just as the macrocytic anemia of pernicious anemia and sprue appears now to respond specifically to folic acid therapy.[4]

Conflicting results were obtained with synthetic cystine, some investigators reporting lipotropic activity of cystine [5] and others reporting its cirrhosis-producing effect.[6] For this reason, synthetic cystine was not employed in this series of cases.

It has been suggested that the lipotropic agent methionine could enhance in a synergistic way the lipotropic (or fatty-cirrhosis-preventing) activity of choline.[7] Animal experiments revealed further that in hepatic damage choline would largely prevent the cirrhosis but not the necrosis and hemorrhage. Methionine was found to effectively prevent both types of damage to the liver. Experimental studies also showed that the cirrhotic symptoms due to choline deficiency result from lack of a methyl-containing essential other than choline and that methionine can directly supply this lack.[8] It is now apparent that although diets may contain an adequate supply of choline, an imbalance or deficiency of other dietary constituents can nullify the lipotropic action of the choline.[9]

Experimental studies demonstrated that an inadequate level of methionine cannot be compensated for

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1. (*a*) Patek, A. J., Jr.: Treatment of Alcoholic Cirrhosis of the Liver with High Vitamin Therapy, Proc. Soc. Exper. Biol. & Med. **37**: 329, 1937. (*b*) Patek, A. J., Jr., and Post, J.: Treatment of Cirrhosis of the Liver by a Nutritious Diet and Supplements Rich in Vitamin B Complex, J. Clin. Investigation **20**: 481, 1941. (*c*) Hoagland, C. L.: Conferences on Therapy: The Modern Treatment of Cirrhosis of the Liver and Hepatic Insufficiency, New York State J. Med. **143**: 1041, 1943. (*d*) Fleming, R. G., and Snell, A. M.: Portal Cirrhosis with Ascites: An Analysis of Two Hundred Cases with Special Reference to Prognosis and Treatment, Am. J. Digest. Dis. **9**: 115, 1942. (*e*) Etiology and Treatment of Cirrhosis, editorial, Ann. Int. Med. **22**: 615, 1945. (*f*) Barker, W. H.: The Modern Treatment of Cirrhosis of the Liver, M. Clin. North America **29**: 273, 1945. (*g*) Ralli, E. P.; Robson, J. S.; Clarke, D., and Hoagland, C. L.: Factors Influencing Ascites in Patients with Cirrhosis of the Liver, J. Clin. Investigation **24**: 316, 1945. (*h*) Hoagland, C. L.: The Therapy of Liver Diseases, Bull. New York Acad. Med. **21**: 537, 1945. (*i*) Beams, A. J.: The Treatment of Cirrhosis of the Liver with Choline and Cystine, J. A. M. A. **130**: 190 (Jan. 26) 1946. (*j*) Morrison, L. M.: The Response of Cirrhosis of the Liver to an Intensive Combined Therapy, Ann. Int. Med. **24**: 465, 1946.

2. (*a*) Gyorgy, P., and Goldblatt, H.: Experimental Production of Dietary Liver Injury in Rats, Proc. Soc. Exper. Biol. & Med. **46**: 492, 1941. (*b*) Broun, G. O., and Muether, R. O.: Treatment of Hepatic Cirrhosis with Choline and Diet Low in Fat and Cholesterol, J. A. M. A. **118**: 1403 (April 18) 1942. (*c*) Russakoff, A. H., and Blumberg, H.: Choline as an Adjuvant to the Dietary Therapy of Cirrhosis of the Liver, Ann. Int. Med. **21**: 848, 1944. Blumberg, H.; MacKenzie, C. G., and Seligson, D.: The Prevention by Choline, Methionine, or Casein, of Dietary Cirrhosis of the Liver in Rats and Rabbits, Federation Proc. **1**: 187, 1942. Post[1a]

3. (a) White, A.: Choline Metabolism, in Wohl,[8a] p. 267. (*b*) Simmonds, S., and du Vigneaud, V.: Transmethylation as a Metabolic Process in Man, J. Biol. Chem. **146**: 685, 1942. Hoaglund.[1h]

4. Spies, T. D.; Vilter, C. F.; Koch, M. B., and Caldwell, M. H.: Observation on the Anti-Anemic Properties of Synthetic Folic Acid, South. M. J. **38**: 707, 1945. Spies, T. D.: Folic Acid for Macrocytic Anemia in Relapse, J. A. M. A. **130**: 474 (Feb. 23) 1946.

5. Daft, F. S.; Sebrell, W. H., and Lillie, R. D.: Prevention by Cystine or Methionine of Hemorrhage and Necrosis of the Liver in Rats, Proc. Soc. Exper. Biol. & Med. **50**: 1, 1942. Tucker, H. F., and Eckstein, H. C.: The Effect of Supplementary Methionine and Cystine on the Production of Fatty Livers by Diet, J. Biol. Chem. **121**: 479, 1937. Beams.[1i]

6. (*a*) Earle, D. P., Jr., and Victor, J.: Cirrhosis of the Liver Caused by Excess Dietary Cystine, J. Exper. Med. **73**: 161, 1941. György, P.: Experimental Hepatic Injury, Am. J. Clin. Path. **14**: 67, 1944. Wohl, M. G.: Dietotherapy, Philadelphia, W. B. Saunders Company, 1945, p. 592. (*b*) Griffith, W. H.: Choline Metabolism: IV. The Relationship of the Age, Weight and Sex of Young Rats to the Occurrence of Hemorrhagic Degeneration on a Low Choline Diet, J. Nutrition **19**: 437, 1940.

7. Morrison,[1j] Griffith.[6b]

8. (*a*) White,[8a] p. 271. (*b*) Jacobi, H. P., and Bauman, C. A.: The Biochemical Defect in Choline-Deficient Rats, J. Biol. Chem. **142**: 65, 1942.

9. White,[8a] p. 274.

by excessive levels of choline and cystine.[10] It was further demonstrated that when methionine was added to choline in experimental hepatic damage and growth, a 50 per cent improvement in therapeutic results occurred.[10b] The damaged liver thus appears to have lost its transmethylation ability and requires both synthetic methionine and choline until normal transmethylation can take place from the ingested food.

Second, in a controlled series of 62 patients over an eight year period,[11] therapeutic results suggested that the combination of methionine and choline resulted in a better therapeutic response than did various other combinations of amino acids, diet, liver and vitamin supplements in the treatment of hepatic cirrhosis. Methionine was taken orally in capsule form, the dosage being 2 Gm. daily. Similarly, choline chloride was administered orally in a daily dosage of 2 Gm.[10d]

A special liver extract was used by me because of experimental evidence that indicated its importance, when used with choline derivatives, as an aid in the prevention of hepatic damage.[11] In addition, clinical evidence showed that a crude liver extract has definite therapeutic value in the treatment of human cirrhosis of the liver.[12a, b] I used a specially filtered liver extract [11a] fortified with vitamin B complex, the administration of which was relatively painless, thus allowing large quantities (3 to 5 cc.) to be injected intramuscularly daily, or every other day, for periods varying from several weeks to several months; injections were tapered off to twice or once a week depending on clinical and laboratory progress in each case. Total vitamin supplements in the diet were often used for the same reasons, which demonstrated their experimental and clinical value in cirrhosis.[12] Each cubic centimeter of the vitamin B complex incorporated in the liver extract contained 10 mg. of thiamine chloride, 10 mg. of nicotinamide and 0.3 mg. of riboflavin. It is possible that the liver extract or the vitamin B complex contains a catalytic agent, which permits transmethylation and utilization by the liver of methionine and choline. In support of this suggestion is the experimental evidence that although the choline and methionine content in the cirrhotic liver may be normal or actually higher than normal,[8a] these factors are not available for utilization.

The high protein diet which I prescribed consisted not only of a high casein source of proteins by the use of skimmed milk feedings and cottage cheese but also of servings of meat three times a day wherever possible. The importance of a high protein diet in cirrhosis of the liver is now thoroughly established [13] and takes precedence over dietary carbohydrate in therapeutic importance. The maximum use of meat in this diet appeared to be advisable because of the necessity for providing the essential amino acids which contain the basic methyl groups, with and without the sulfur radical. These methyl groups are required by the liver for the transmethylation function which institutes regeneration and healing in cirrhosis. As has previously been stated, cirrhosis of the liver when produced experimentally is now regarded as a methyl-group deficiency disease.

In all possible ways, in cases in which the patient could tolerate it, the patient's diet was stepped up to the limits of tolerance by forced feedings, or any other device, in the attempt to ingest the ideal maximum intake of 200 to 300 Gm. of protein, 300 Gm. of carbohydrate and 50 Gm. of fat.

CLINICAL MATERIAL

A group of 20 patients with proved cirrhosis of the liver were treated and diagnostically divided into (*a*) 9 patients with ascites and (*b*) 11 patients apparently free of ascites. All 20 patients revealed characteristic physical signs of cirrhosis of the liver, such as palpable enlargement of the liver, increased venous circulation in the skin over the anterior part of the abdomen and upper portion of the chest, ascites, edema of the legs, glossitis and decided loss of weight. In addition characteristic symptoms were present, such as weakness, malaise, inability to engage in normal mental or physical activities, anorexia or nausea, abdominal distress, gas, belching and constipation.

There were 16 men and 4 women in this group. Nine patients gave an antecedent history of alcoholism. The ages ranged from 36 to 64 years, with a group average of 50 years. The average duration of symptoms on presentation for treatment in the group was 1.6 years, with a range of from one month to five years.

For comparison a control group of 23 patients with cirrhosis of the liver was analyzed. This group of patients was treated from 1938 to 1940 by the therapeutic regimen then in current use; a high carbohydrate diet, palliatives, dextrose given intravenously, sedatives and diuretics. The average duration of symptoms before treatment was 1.8 years, with a range of from one month to 5 years. Twelve of these patients were chronic alcoholic addicts, and their average age was 46 years.

Improvement was measured both in clinical terms, such as decrease in the size of the liver, increase in strength and appetite and amelioration of preexisting symptoms, together with improvement toward normal values in liver function tests. The liver function tests routinely used in almost every case were the intravenous sulfobromophthalein sodium excretion test (thirty and sixty minute samples), the urobilinogen test in twenty-four hour specimens of urine, the icterus index and quantitative van den Bergh tests from the blood and bile salt concentration tests of the bile and urine devised by me.[14] Many additional tests were performed, such as the cholesterol ester partition value and the hippuric acid synthesis test. The tests were carried out immediately prior to treatment, and frequent periodic checks were made, usually at monthly intervals.

10. (*a*) Womack, M., and Rose, W. C.: The Partial Replacement of Dietary Methionine by Cystine for Purposes of Growth, J. Biol. Chem. **141**: 3775, 1942. (*b*) Almquist, H. J., and Grau, C. R.: Further Studies on Cystine, Methionine and Choline in Chick Diets, J. Nutrition **29**: 219, 1945. (*c*) Grau, C. R.: The Utilization of the Sulfur Amino Acids by the Chick, ibid. **26**: 631, 1944. Almquist, H. J., and Grau, C. R.: Interrelation of Methionine, Choline, Betaine and Arsenocholine in the Chick, ibid. **27**: 263, 1944. (*d*) For the past year I have prescribed choline chloride, which is much better tolerated.

11. Fouts, D. J. Vitamin B Complex-Studies in Dogs: Production of Cirrhosis of the Liver, J. Nutrition **25**: 217, 1943.

11a. This liver extract is similar to that used by other investigators (footnote 1c, g and h) and is not standardized for pernicious anemia by U. S. P. units.

12. Patek.[1a] Patek and Post.[1b] Fouts.[11]

13. Ravdin, I. S.; Thorogood, E.; Riegel, C.; Peters, R., and Rhoads, F. E.: The Prevention of Liver Damage and the Facilitation of Repair in the Liver by Diet, J. A. M. A. **121**: 322 (Jan. 30) 1943.

14. Morrison, L. M.: IV. A New Test of Liver Function Determined from the Concentration of Bile Salts in Bile and Urine, Am. J. Digest. Dis. **7**: 527, 1940. Morrison, L. M., and Swalm, W. A. Observations on a Simple and Accurate Method for Quantitative Determination of the Bile Salts in Urine and Bile, J. Lab. & Clin. Med. **25**: 739, 1940; Preliminary Report of a New Physiologic Test for Liver Function, Rev. Gastroenterol. **7**: 269, 1940; The Bile Salt Concentration in Surgical Drainage Bile from Normal and Diseased Livers, ibid. **7**: 464, 1941. Morrison, L. M.: VI. A Simple and Accurate Method for Quantitative Determination of Bile Acids and Salts in Bile, J. Lab. & Clin. Med. **28**: 1503, 1943. Morrison, L. M., and Swalm, W. A.: Two New Tests for Gallbladder Disease, Rev. Gastroenterol. **12**: 175, 1945.

The tests involving only urinary excretions were often made more frequently. It was usually possible to correlate the tests with clinical improvement, although this could not be done in numerous instances due to contradictory results. However, more often than not laboratory correlation between the tests occurred, even

TABLE 1.—*Cirrhosis of the Liver Without Ascites*

Comparison of control cases* with treated cases† at the end of two years

	Controls *	Treated †
Number of cases	11	9
Deaths	3	0
Incapacitated from illness	6	3
Return to normal activity	2	6
Disappearance of symptoms	1	7
Improvement in liver function tests	1	9
Alcoholic history	6	4

* Patients treated from 1938 to 1940 with palliatives, high carbohydrate diet, sedatives, diuretics and intravenous dextrose.
† Patients treated from 1943 to 1945 with methionine, choline, high protein, low fat diet, liver extract and vitamin therapy.

though differing tests examined different functions of the liver. On the whole, the tests were found to be a valuable index of clinical improvement when clinically interpreted in the knowledge of their limitations and usefulness.

RESULTS

1. *Group of Nine Patients Without Ascites* (table 1).—After an average of three months of treatment, 8 patients returned to normal activity. The liver in each of these instances receded to normal limits, with the exception of 1 case. Definite clinical improvement was present in each treated case, with complete disappearance of symptoms in 7 cases and improvement in the remaining 2 cases. Liver function tests were improved in each case from two to four weeks after therapeutic management was instituted. Most of the tests were normal in the 7 cases at the end of five months. A control group of 11 patients with cirrhosis of the liver in whom only palliative measures were employed from 1938 to 1940 revealed 3 deaths at the end of three years. The group of patients treated by the methionine-choline liver extract method revealed no mortality at the end of two years. In the control group of 11 patients the morbidity was revealed as 9 patients who had not yet died at the end of two years but were incapacitated because of illness. In the treated group there were no patients who were disabled at the end of two years.

2. *Group of Nine Patients with Ascites* (table 2).—After an average of four months of treatment, 4 patients returned to normal activity. The livers in these 4 patients receded to normal limits in each case. Complete disappearance of symptoms took place in 4 cases, improvement was present in 5 cases. In 4 patients the disease appeared to be arrested, neither improvement nor progression of the disease occurring. One patient grew worse and died after two months. Liver function tests showed improvement in 5 patients, usually in from two to four weeks after therapy. In the untreated control group of cases, 9 of the 12 patients were dead at the end of two years, as against 1 of the 9 patients in the treated group. In the control group the morbidity incidence was 2 patients who survived but were incapacitated at the end of two years, as against 5 patients in the treated group who survived but were incapacitated.

REPORT OF CASES

CASE 1.—*History.*—T. I., a white man aged 54, complained of slight jaundice, dyspnea, decided anorexia and nausea, all of three months' duration. The past medical history revealed an intake of about a half pint of whisky and several bottles of beer daily over a ten year period. Meals were frequently omitted.

Physical Examination.—Essentially a mild but definite icteroid discoloration was present in the scleras and skin. The nutritional appearance seemed normal. The abdomen was not distended, and ascites were not detectable. The liver was enlarged to 3 cm. below the right costal margin, and the liver edge was firm, smooth and tender to palpation.

Liver Function Tests.—The icterus index was 28 units; a twenty-four hour urobilinogen test was positive in a 1:60 dilution; the sulfobromophthalein sodium retention in the blood was 15 per cent at one hour. Bile salt concentration tests (Morrison [14]) revealed 620 mg. of bile salts per hundred cubic centimeters of urine and 280 mg. of bile salts per hundred cubic centimeters of bile (both pathologic).

Treatment.—Two grams each of methionine and choline were given daily in conjunction with 3 cc. of an aqueous liver extract fortified with vitamin B complex for two months. The diet consisted of one average serving of meat with each meal, three times a day; a liberal intake of fruit and vegetables, and skimmed milk between each meal and on retiring.

Progress.—Within two weeks there was a diminution in jaundice, an increase in strength and well-being and disappearance of all symptoms. In two months, all visible jaundice had disappeared and the patient was completely free of symptoms. The values for all liver function tests had returned to normal. The edge of the liver had receded and was about 1 cm. below the right costal margin.

This patient was referred for psychiatric treatment in the attempt to prevent recurrence of the emotional factors which had motivated his escape into alcoholism. For one year following his recovery he has remained in excellent physical and mental health.

CASE 2.—*History.*—A. L., a man aged 51, a traveling salesman, was seen four months after the onset of jaundice. There was associated weakness, abdominal distention, pain in the epigastrium and loss of weight. From four to five whisky highballs and several bottles of beer had been drunk daily for many years, and meals were frequently skipped when he was driving on long trips. Immediately prior to the onset of jaundice, the patient had been inhaling the fumes from a special antifreeze

TABLE 2.—*Cirrhosis of the Liver with Ascites*

Comparison of control cases* with treated cases† at the end of two years

	Controls *	Treated †
Number of cases	12	9
Deaths	9	1
Incapacitated from illness	2	5
Return to normal activity	1	4
Disappearance of symptoms	0	4
Improvement in liver function tests	1	5
Alcoholic history	6	5

* Patients treated from 1938 to 1940 with palliatives, high carbohydrate diet, sedatives, diuretics and intravenous dextrose.
† Patients treated from 1943 to 1945 with methionine, choline, high protein, low fat diet, liver extract and vitamin therapy.

mixture, which had been escaping from an overheated radiator while he was driving his automobile on long trips.

Physical Examination.—Evidence of loss of weight was pronounced; pitting edema was present in both legs; the abdomen was moderately distended and displayed shifting dulness with a fluid wave. The collateral venous circulation was clearly visible over the abdomen and lower part of the chest; well defined hemorrhoids were present. The liver could not be palpated because of the distention.

Liver Function Tests.—The icterus index was 40 units; twenty-four hour urobilinogen tests were positive in a 1:100 dilution; the sulfobromophthalein sodium retention in the blood was 25 per cent in one hour. Bile salt concentration tests revealed 940 mg. of bile salts per hundred cubic centimeters of urine and 220 mg. of bile salts per hundred cubic centimeters of bile (pathologic). The total serum protein was 6.75 Gm. per hundred cubic centimeters, the albumin-globulin ratio was 0.8.

Treatment.—This patient was placed on a protein diet as high as could be tolerated (three servings of meat a day), low in fat, high in carbohydrate, high in fruit and vegetable content, with 2 quarts (2.3 liters) of skimmed milk and one serving of cottage cheese daily. Two multivitamin capsules [15] were taken daily; 5 cc. of whole aqueous liver extract was injected intramuscularly daily for one week, then every other day for two weeks, then twice weekly for one month. Two grams each of methionine and choline chloride were taken daily for three months.

Progress.—Within two weeks, decided diuresis began; in two months a negative water balance was present, all evidence of ascites and edema having completely disappeared. The edge of the liver was then just palpable below the right costal margin. In three months all tests of hepatic function had returned to normal values, as well as the serum albumin-globulin ratio (1.9). The patient returned to work and was completely symptom-free; one year later he reported that he was in excellent health.

This patient, who had an alcoholic background, probably suffered a superimposed toxic hepatitis when he inhaled the toxic fumes of an antifreeze preparation for a one week period while driving his automobile. His ascites responded promptly by diureses, which were due probably to an antidiuretic factor in the treatment as proposed by various investigators.[1c, g]

SUMMARY

1. A group of 20 patients with cirrhosis of the liver was treated by an intensive combined therapeutic regimen from 1943 to 1945; the results were compared with those in a control series of 23 patients with cirrhosis of the liver observed from 1938 to 1940. The control patients did not receive any of the forms of treatment given to those in the treated group.

2. All 43 patients were separated into groups with and without evidence of portal decompensation or ascites. Therapeutic results were compared over two year periods of time in each group.

3. The treatment consisted of the daily ingestion of 2 Gm. each of methionine and choline chloride, an aqueous whole liver extract with vitamin B complex supplement administered parenterally each day and a diet of maximal protein-carbohydrate, minimal fat intake with casein supplements.

4. After two years all patients in the treated group without ascites were alive, as compared with 3 deaths in the 11 patients of the control series.

5. After two years 8 of the 9 treated patients with ascites were alive, as compared with 3 of the 12 in the control series.

6. Six of the 9 treated patients without ascites had returned to normal activity in two years, as compared to 2 of the 11 in the control group.

7. Four of the 9 treated patients with ascites had returned to normal activity in two years, as compared with 2 of the 12 patients in the control series.

15. Capsules contained vitamin A 5,000 units, vitamin B_1 3 mg., vitamin B_2 2 mg., vitamin B_6 1 mg., calcium pantothenate 1 mg., niacinamide 20 mg., ascorbic acid 30 mg. and vitamin D 500 international units.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. WEIR, DR. OSGOOD, DRS. GIANSIRACUSA AND ALTHAUSEN, DR. CAPPS, CAPTAIN SBOROV AND DR. BARKER, DR. WILBUR, DR. HAVENS, LIEUTENANT COLONEL MALLORY, DRS. KIMBALL, CHAPPLE AND SANES, DR. HOFFBAUER, DRS. BOLES, CREW AND DUNBAR AND DR. MORRISON

DR. CECIL J. WATSON, Minneapolis: I want to congratulate not only the contributors to this symposium but also the officers of the Sections, who planned it. With regard to liver function tests, the two methods which are sufficiently simple that they may be designated as bedside tests should be emphasized. These are (1) the urine Ehrlich test for urobilinogen; and (2) the modified Harrison or barium filter strip test for bilirubin. It has been proved that one cannot rely on any single test or, in fact, on any two tests to give the necessary information from case to case. A composite study must be made of the functions of the liver; one must take a vote of these functions, if you will, and in that way, try to get a better insight into the overall current activity of the liver. Dr. Osgood has already indicated this in his excellent article. I think the urobilinogen test in the urine has received some injustice at the hands of dilution technics which have been widely employed. The test of Wallace and Diamond requires evident color in a dilution of 1:20 in order to be regarded as positive. This eliminates a large number of significant reactions. The use of sodium acetate in the qualitative reaction serves to bring out the maximum intensity of color and to eliminate certain interfering colors. I would recommend the inclusion of sodium acetate in this reaction. Dr. Osgood has indicated that the methylene blue test for bilirubin in the urine is simpler but not as reliable as the modified Harrison test. In my experience the latter has been not only simpler but more specific than the methylene blue test; it lends itself admirably to mass usage and is of particular value in the study of a large number of persons with respect to incipient or preicteric hepatitis. In a dynamic disease such as hepatitis, different tests are of different value at various stages of the disease. The experience gained during the war indicates that in the incipient or preicteric stage of hepatitis a study of the prompt reacting serum bilirubin, the urine bilirubin, and the urine Ehrlich reaction permits one to obtain the necessary information in at least a large majority of the cases. In the icteric stage of the disease the Hanger cephalin cholesterol flocculation and the Maclagan thymol turbidity tests, the serum cholesterol, both free and ester fractions, and the urine Ehrlich reaction followed frequently have been of greatest value. In the late, defervescent stage, which offers the greatest difficulty with particular reference to whether the person has actually a latent disease and whether he should be allowed to resume routine activity, one often has to go into more complex and composite types of study. The procedures which have been used to best advantage in this stage are as follows: The serum bilirubin, especially the delayed type, that obtained by subtracting the prompt or 1′ fraction from the total; the urine Ehrlich reaction; the Hanger and Maclagan tests; the sulfobromophthalein sodium retention at forty-five minutes after the injection of 5 mg. of the drug per kilogram of body weight; and finally, the twenty-four hour urinary coproporphyrin which appears to be one of the most delicate means of detecting residual hepatic functional impairment.

DR. S. J. GLASS, Los Angeles: This symposium would be incomplete without proper emphasis of one of the functions which, in my way of thinking, is extremely important to reproductive physiology; namely, that one concerned with the inactivation of the sex steroid hormones. There is now ample experimental and clinical evidence, to indicate that a damaged liver will invariably be followed by some damage of the reproductive organs, particularly the testes and the sex accessories. This is probably due to the hepatic failure of steroid hormone inactivation, particularly the estrogens, so that abnormal concentrations of free, biologically active estrogens

are available for the induction of gonadal damage, especially in the male. The damage to the sex organs is, in my experience, proportional to the severity and the duration of the hepatic disease. My associates and I reported in 1940 such hormonal observations in the striking syndrome of gynecomastia and testicular atrophy associated with advanced hepatic cirrhosis. Recently our group observed damage of sex organs in rats with experimental cirrhosis. Apropos of this liver-gonadal relationship, Snell and his associates reported in 1945 striking testicular damage in cases with acute hepatitis. Wood in 1946 likewise reported testicular damage in men with acute hepatitis. It is necessary to emphasize this liver-gonadal relationship so that a closer inspection of the patient be made at the bedside as well as at the postmortem table for evidences of pathologic conditions of the reproductive system particularly in the male testes, in the sex accessories and in the breast, in every case of disease of the liver. Where facilities are available, hormone assays for the estimation of urinary estrogens should be carried because the presence of free unconjugated estrogens in the urine is, in our experience, an accurate index of the failure of that particular function of the liver which has to do with the inactivation of the sex steroids. The clinical implications of this particular liver-gonadal relationship are truly legion. I commend their consideration to this group.

DR. LEON SCHIFF, Cincinnati: I should like to reemphasize the value and practical aspects of hepatic biopsy. At Cincinnati needle biopsy of the liver has been performed in 75 patients, and has been found particularly helpful in the diagnosis of hepatoma and secondary malignant disease of the liver. It was particularly useful in diagnosis in the case of a woman aged 32 who was admitted to the Cincinnati General Hospital with deep jaundice and coma; a clinical diagnosis of acute yellow atrophy was made by the clinicians who saw her. Biopsy of the liver revealed the changes of early obstructive cirrhosis. Two months after the patient recovered from coma and jaundice, laparotomy was performed and a stone was removed from the common duct. A hepatic biopsy specimen obtained at operation still showed the presence of obstructive cirrhosis, but a year later a third biopsy of the liver showed complete restoration of the organ to normal. We have had no serious mishaps in our 75 patients, although, as Dr. Hoffbauer has stated, fatalities have been reported subsequent to the procedure. Recently we encountered an instance of perihepatitis about two weeks after the procedure was carried out, with the perihepatic friction persisting for another week. I should like to ask Dr. Hoffbauer if he has encountered this complication. I should also like to ask if he has used the procedure in the differential diagnosis of jaundice due to hepatitis and that due to tumor or stone in the common duct. Since histologic studies have recently been made in infectious hepatitis, it seems that acquaintance with these changes might be helpful in the differentiation of this disease from jaundice due to neoplasm or to stone in the common duct. I should like to ask Dr. Althausen if he noticed any differences in the intravenous galactose tolerance and response of prothrombin time to vitamin K between the so-called hepatocellular group of hepatitis and the group Dr. Watson has referred to as the cholangiolar type. I believe a fourth of his cases were of the cholangiolar type. I should also like to ask Captain Sborov if he and Drs. Capp and Barker have a practical application of the exercise tolerance test in patients with infectious hepatitis which might be used in civilian practice.

DR. THEODORE L. ALTHAUSEN, San Francisco: I wish to say a few words about the first two papers on the program, those by Drs. Weir and Osgood. The merit of needle biopsies of the liver has interested me but the mortality associated with this diagnostic procedure, even though small, has prevented me and my associates from using it. In reference to Dr. Kimball's remarks about the reduced mortality rate of hepatic cirrhosis during the last five years I want to say that with the beginning of the war a decided drop in admissions of patients with cirrhosis and a reduction in the mortality rate of this disease has been observed at the San Francisco County Hospital. This has not occurred at the University Hospital. A possible interpretation of this difference is that before the war patients with cirrhosis who were admitted to the County Hospital had been able to raise enough money for liquor but had little left over for food. Since the beginning of the war they had enough money for both, with a corresponding improvement in their health. At the University Hospital, where patients from a higher economic level are represented, no such change was observed. To answer Dr. Schiff's question, no difference was noticed in the results of the intravenous galactose test or in the response of prothrombin time to vitamin K administration in the two types of hepatitis which he mentioned.

DR. HARRY SHAY, Philadelphia: I should like to stress the value to be derived from liver function studies in the differentiation of hepatocellular and cholangiolar or other types of obstructive jaundice. In evaluation of liver function tests, especially in jaundice, certain factors must be kept in mind. The multiplicity of the functions of the liver and the dissociation of the effects produced by hepatic damage has been stressed adequately. Another factor mentioned by Dr. Watson has not been appreciated sufficiently, namely that hepatic function is always a dynamic never a static process, and especially so in jaundice. In testing liver function in jaundice, several tests performed early and repeated frequently will overcome these difficulties. An adequate procedure should include two tests primarily affected by obstruction and two by hepatocellular damage. These requirements are met by the cholesterol partition in the blood serum, serum alkaline phosphatase and thymol turbidity tests. The quantitative van den Bergh measures the level of icterus. Total serum cholesterol and phosphatase reflect the effects of obstruction, while cholesterol ester ratio and thymol turbidity tests reflect those resulting from hepatocellular damage. Serum alkaline phosphatase was found to be the most sensitive indicator of obstruction. Striking changes in serum phosphatase levels occur with little or even no alteration in bilirubin level under conditions which cause only slight back pressure in the biliary tree. From a study of the various flocculation tests, the cephalin cholesterol, colloidal gold and thymol turbidity tests, I believe the last named will prove to be the most useful in the differentiation of jaundice. I have been impressed by a persistence of precipitate in the thymol test at eighteen hours in acute hepatitis after return of the reading of the test to normal at one-half hour. I have attempted to quantitate the precipitate by reading the turbidity of the supernatant at the end of eighteen hours. This reading in Maclagen units as the numerator over the half hour reading as denominator establishes a ratio indicating the degree of precipitation. Extremely interesting curves of these ratios can be plotted in the recovery and convalescent periods of patients with acute hepatitis. In my opinion the persistence of such precipitates into the convalescent period is not indicative of continuing hepatic damage provided the ratio continues to approach 100 per cent. Its persistence seems an indication of the time necessary for the serum protein fractions to become completely normal after acute hepatitis. The failure of the ratio to approach 100 per cent may be an indication of continuing damage to the liver even when other liver function tests have returned to normal.

DR. HYMAN I. GOLDSTEIN, Camden, N. J.: I rise to discuss the presentations by Drs. Althausen, Wilbur, Boles and Morrison. In reviewing the modern methods of diagnosis and treatment of hepatic disease, particularly that associated with jaundice, macrocytic anemia, alcoholic cirrhosis, hepatitis and neoplasm of the liver one should recall the early work of the Frenchman Professor Maurice Perrin of Nancy and others of his countrymen. I knew Professor Perrin, and I was on the programs at Vichy, France, in 1932 and in 1937, where I met him while attending the International Congresses on Gallbladder and Liver Diseases. Professor Perrin in 1904, 1905 and 1908 published his reports on "Alcoholic Cirrhosis." He found that liver therapy improved the anemia and the general condition of his patients. In June 1921 I published a paper on "Primary Sarcoma of the Liver" (Internat. Clinics **2**:73 [June] 1921) with a Review of the Literature and the report of a case. Fifty-nine cases (primary) were found recorded in the literature (1921). Many of them were associated with

cirrhosis or with gallstones. Few, if any, occurred in alcoholic addicts. MacMahon, Murphy and Bates, of Boston, on June 19, 1946 reported a case of primary sarcoma of the liver which in their opinion was caused by the administration of colloidal thorium dioxide for roentgenologic diagnosis and study. This interesting report was presented before the National Gastroenterological Association in New York. In my paper on "Primary Malignant Tumors of the Liver," (*M. J. & Record* **120**:119-123 [Aug. 6] 1924), with report of 12 cases, it was shown that cirrhosis and cancer may coexist without causal relationship (Yeomans). Cirrhosis may precede or follow the growth. However, in Eggel's series some cirrhosis was present in 85.4 per cent. In 69 of 163 cases pronounced cirrhosis was present.

Dr. Leo Lowbeer, Tulsa, Okla.: I should like to bring to your attention another cause for cirrhosis of the liver, namely chronic brucellotic infection. It is known that brucellotic granulomas frequently occur in the liver of inoculated animals. They have also been frequently found in livers of patients with fatal brucellosis at autopsy. I had occasion to biopsy the liver of a patient with osteomyelitis of the ilium bacteriologically proved due to Brucella suis. In this patient there developed symptoms of a cholecystitis, and the surgically removed gallbladder as well as a biopsy of the liver contained a large number of brucellotic granulomas. A similar observation on a hepatic biopsy was reported by Mettier and Kerr. In view of the chronicity of the brucellotic process it is conceivable that this often diffuse granulomatous inflammation of the liver may develop into cirrhosis of the liver. As a matter of fact, Hegler, Habs and others have reported cases of bacteriologically or serologically proved brucellotic infection, in which they could observe the development of a hepatic cirrhosis from an early stage with hepatomegaly and jaundice to a terminal stage with ascites and esophageal varicosities. They spoke of a hepatosplenomegalic type of chronic brucellosis. A review of the reported autopsies on fatal cases of brucellosis shows a certain percentage in which cirrhosis of the liver had developed during the brucellotic infection and death was due to rupture of an esophageal varix or to ascites with wasting.

Dr. Virgil H. Moon, Philadelphia: A pathologist has a keen interest in the histogenesis of portal cirrhosis. This tempts me to violate the precedent that the chairman should not discuss items on the program. After years of study on portal cirrhosis, often called the alcoholic cirrhosis, I came to the conclusion that from the point of view of pathology portal cirrhosis is synonymous with chronic progressive hepatitis. Hepatitis which does not become chronic and which does not progress, as the cases of acute hepatitis under discussion today, do not qualify as cirrhosis. The causes of chronic progressive hepatitis will be sought and perhaps found among those agents or conditions which singly or in combination will produce a chronic, progressive, inflammatory process. I agree with Dr. Boles that alcohol is not usually a primary agent. I think that he also endorses the belief that alcohol may act as an important contributory factor and hence may fall into the category of combinations of agents, thereby stimulating or increasing the effect of some other agent which is producing injury to the liver, with chronic inflammation as a result.

Dr. Edwin E. Osgood, Portland, Ore.: I agree with Dr. Watson's comments on the relative merits of the liver function tests mentioned in my paper. I want to reemphasize the importance in interpretation of liver function tests of the time-intensity curves which are graphic representation of the stage of the disease, as determined from the history and serial tests.

Dr. Frederick W. Hoffbauer, Minneapolis: Dr. Schiff has raised the question of the development of perihepatitis at the site of needle biopsy of the liver. I do not recall having observed such a reaction. There is always a small amount of bleeding at the site; some such reaction at that area might well occur. It is more difficult to answer Dr. Schiff's second question: can needle biopsy of the liver be used to advantage in the differential diagnosis of the jaundiced patient? In other words, can one determine from the histologic examination of this small strip of tissue whether the jaundice is due to an intrahepatic obstruction, such as occurs in parenchymal disorders, or is due to the intrahepatic obstruction of a gallstone, a tumor or a stricture of the biliary ducts? I directed this same question to Dr. Iversen of Copenhagen, Denmark, recently. On the basis of his wide experience of over 600 biopsies, Dr. Iversen is in a much better position to judge the value of the procedure in this regard. He stated in his letter that if the patient was subjected to biopsy within the first two weeks of jaundice, one could nearly always differentiate the nature of the obstructive process. This is certainly in keeping with my experience which has been on a much smaller scale. It must be admitted that the strip of tissue is extremely small, and the pathologist may well experience difficulty in interpretation if the specimen for biopsy is taken weeks or months after the onset of jaundice.

Capt. Victor M. Sborov, M. C., A. U. S.: In answer to Dr. Schiff's question about a practical exercise tolerance test, I should like to say that prior to the time the patient is given his exercise tolerance test other criteria for cure must be met. The patient must have completed at least four to six weeks of strict rest in bed and should be completely free of symptoms. There should be present no clinical symptoms, no enlargement of the liver or hepatic tenderness. The last mentioned is the most important. The laboratory tests should be completely within normal limits. Following this the patient is allowed to become slowly ambulatory on the ward over a period of seven to ten days, and if the criteria for cure continue to be met the patient is then allowed to take the exercise tolerance test. In the service I admit that the exercise tolerance test is a lot easier to execute than in civilian practice. There the patient is guided by the reconditioning officer. The first day the test consists merely of a 1 mile hike, the second day a 2 mile hike plus fifteen minutes of calisthenics, the third day a 3 mile hike plus 20 minutes of calisthenics, and so forth, until ten to fifteen days have been completed; the calisthenics consist preferably of liver-jolting exercises, such as a side straddle hop. The civilian patient cannot be followed as easily as the man in the service; however, the exercise test is important, I believe, and should not be overlooked. Its practical execution depends on the ingenuity of the physician. I think such exercises as horseback riding or long walks can easily be performed by the patient. To facilitate the following of the patient by the physician, the patient can be instructed as to the symptoms which will predict a relapse, such as discomfort in the right upper quadrant of the abdomen, flatulence and the other characteristic complaints.

Dr. Tracy B. Mallory, Boston: Dr. Watson is going to force me to mention something which I carefully left out, since I consider available evidence inadequate. In all the postmortem material which had been submitted to the Army Institute of Pathology up to the first of December, there was not 1 definite case of cirrhosis which could be attributed to a preceding hepatitis. In the biopsy material the time interval, as Dr. Watson pointed out, was invariably short. Since these cases were studied in an active theater of war, if a man was not able to get back to duty in the course of three or four months he was sent home, so there was no opportunity to observe late cases. In the group were 2 cases which seemed to be cirrhotic. One patient had no characteristic acute attack and the impression was gained that he had a mild cirrhosis before entering the Army. The second patient did have acute hepatitis and two months later showed early fibrosis; on the other hand, all these biopsies were obtained by the peritoneoscope and the possibility of extension of fibrous tissue from the capsule was difficult to exclude. In civilian life I have seen a number of cases of what F. B. Mallory in 1905 called toxic cirrhosis following hepatitis. These patients have survived considerable periods, in 1 instance as long as ten years after the initial episode. Ascites developed, and they required repeated hematemeses, showed enlarged spleens and had all the common symptoms of cirrhosis of the liver. I believe that it is probable that in occasional incidences cirrhosis of this type does follow epidemic hepatitis.

DR. STOCKTON KIMBALL, Buffalo: I merely want to comment on Dr. Althausen's remarks. In my second five-year group of cases occurring during the war, the incidence of cirrhosis was greater than was that of alcoholism; the incidence of avitaminosis and of jaundice was greater than in the previous period.

DR. RUSSELL S. BOLES, Philadelphia: In lieu of accepting your apology, Mr. Chairman, I think we would have to criticize you for shirking your responsibility had you not taken part in this discussion. Dr. Moon is one of the great authorities on this subject. My main purpose is to sound a note of caution against drawing too hasty conclusions and assuming that this disease, portal cirrhosis of the liver, is a disease due to nutritional deficiency. I am hearing that more and more every day, from the students at Philadelphia General Hospital and from interns and physicians. Personally I don't believe it is any more a nutritional deficiency disease than a disease solely due to alcoholism; on the other hand, I want to commend Drs. Morrison, Nemling and Neal as well as many others for the interesting, constructive work they are doing in the treatment of this disease. However, I believe their results are being best achieved in those cases showing fatty dystrophy of the liver in which some degree of reversibility can be attained. In the later stages of portal cirrhosis, when extensive scar formation has taken place and ascites has developed, it is not conceivable to me that parenchymal regeneration can occur, the symptoms subside and the disease be cured or even arrested. I do not believe these patients could grow new liver cells any more than they could grow hairs on a bald head. I can't follow the logic as far as protein is concerned. It was not long ago when it was reported that an excessive degree of animal protein was injurious to the liver. I appreciate that protein in acute disease conditions hastens the regeneration and proliferation of tissue. If a drunk eats an excess of anything, it is protein. He often lives on meat and potatoes. Economics, as Dr. Althausen has pointed out, has little to do with this disease in the East. In a large, 2,500 bed hospital, such as the Philadelphia General, one picks up a considerable knowledge during the years concerning the diet of this class of people. It is the wealthy patients who often show the least intelligence about their diet and who might be more susceptible to these diseases, if diet alone was so much to blame. There is some great unknown factor at work in the etiology of cirrhosis. No one knows why some particular person is going to become an alcoholic addict. Of 10 persons drinking the same amount of alcohol over the same period, some 1 or 2 are doomed to alcoholism. Why? Is it a constitutional predisposition, or tissue susceptibility? No one knows. The same thing with cirrhosis. There may be 100 individuals drinking the same amount of liquor over the same period, and some 1 or 2 of them are going to get cirrhosis. Why?

DR. LESTER M. MORRISON, Los Angeles: I wish to thank Dr. Watson for his comments. I would like to emphasize that the best results occur in the treatment of alcoholic cirrhosis; and of these, the best results are obtained in the patients in whom the cirrhosis or the cirrhotic ascites has developed comparatively recently. This may account for the difference in therapeutic results in Dr. Watson's cases, since his etiologic incidence of alcoholism is half that in my cases. He also feels that the methionine content in the high protein diet is such (3 Gm.) as to render unnecessary the administration of synthetic methionine. Bollman, Mann and Magath first showed, by their classic experiments on hepatectomized dogs, that the metabolism of amino acids and the process of deaminization takes place mainly in the liver. I feel that these functions are so impaired in the cases of cirrhosis which I have presented that the liver is unable to metabolize sufficiently for the patient's needs the methionine in the diet. Therefore, until this point is clarified exactly I would prefer to give the methionine and to make certain that the patient receives an adequate supply of methionine. I believe the experimental work on methionine which I have quoted tends to support this belief. I also wish to thank Dr. Boles and Dr. Goldstein for their comments.

STREPTOMYCIN TOXICITY

Reactions to Highly Purified Drug on Long-Continued Administration to Human Subjects

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It is probable that the principal value of streptomycin will be in the treatment of subacute and chronic infections, notably tuberculosis, in which it will be necessary to administer the drug for long periods. Evaluation of the chronic toxicity of the material for human beings is thus appreciably more important than is the case with sulfonamide compounds or penicillin.

The effects of the short term administration of preparations of impure streptomycin to human subjects have been studied both by a number of independent investigators and in a cooperative study under the auspices of the National Research Council.[1] The only observations on long-continued administration of impure streptomycin are those presented in a preliminary report by Hinshaw and Feldman.[2] In their study an average daily dose of 1.5 Gm. of the drug was administered for periods of several or more months. In all the reports there is agreement that in general the impure drug is well tolerated but that occasionally untoward reactions of variable severity occur.

Four general types of toxic reaction have been observed: the so-called histamine reaction, characterized by flushing, headache and an abrupt fall in arterial pressure; various manifestations of anaphylaxis; a neurologic disturbance characterized by vestibular dysfunction and occasionally by deafness,[3] and evidences of renal irritation manifested by cylindruria and occasionally accompanied by impairment of renal function.[4]

It has not been possible to establish whether the observed evidences of toxicity were caused by contaminating substances or were produced by the antibacterial agent itself. There is reason to believe that at least one phenomenon, the so-called histamine reaction, was the

The study was also aided in part by a grant from the Lederle Laboratories, Inc., Pearl River, N. Y.

A part of the streptomycin was furnished by the committee, and the remainder was generously donated by Chas. Pfizer & Company, Inc., Brooklyn.

Owing to lack of space, this article has been abbreviated in THE JOURNAL by omission of tables 1 and 2. The complete article will appear in the authors' reprints.

This investigation was conducted under the direction of the National Research Council Committee on Chemotherapeutics and Other Agents, Dr. Chester S. Keefer, chairman.

1. Rutstein, D. D.; Stebbins, R. B.; Cathcart, R. T., and Harvey, R. M.: The Absorption and Excretion of Streptomycin in Human Chronic Typhoid Carriers, J. Clin. Investigation **24:** 898-909 (Nov.) 1945. Adcock, J. D., and Hettig, R. A.: Absorption, Distribution and Excretion of Streptomycin, Arch. Int. Med. **77:** 179-195 (Feb.) 1946. Buggs, C. W.; Pilling, M. A.; Bronstein, B., and Hirshfeld, J. W.: The Absorption, Distribution, and Excretion of Streptomycin in Man, J. Clin. Investigation **25:** 94-102 (Jan.) 1946. Anderson, D. G., and Jewell, M.: Absorption, Excretion and Toxicity of Streptomycin in Man, New England J. Med. **233:** 485-491 (Oct. 25) 1945. Heilman, D. H.; Heilman, F. R.; Hinshaw, H. C.; Nichols, D. R., and Herrell, E. W.: Streptomycin: Absorption, Diffusion, Excretion and Toxicity, Am. J. M. Sc. **210:** 576-584 (Nov.) 1945. Zintel, H. A.; Flippin, H. F.; Nichols, A., and Wiley, M. M.: Studies on Streptomycin in Man: Absorption, Distribution, Excretion and Toxicity, Am. J. M. Sc. **210:** 421-430 (Oct.) 1945. Keefer, C. S., and others: Streptomycin in the Treatment of Infections, J. A. M. A. **132:** 4-11 (Sept. 7); 70-77 (Sept. 14) 1946.

2. Hinshaw, H. C., and Feldman, W. H.: Streptomycin in Treatment of Clinical Tuberculosis, Proc. Staff Meet., Mayo Clin. **20:** 313-318 (Sept. 5) 1945.

3. Brown, H. A., and Hinshaw, H. C.: Toxic Reaction of Streptomycin on the Eighth Nerve Apparatus, Proc. Staff Meet., Mayo Clin. **21:** 347 (Sept. 4) 1946.

4. Unpublished observations from this laboratory.

result of an impurity, as it occurred only after the administration of certain lots of the drug and is no longer detectable in the currently available product. Molitor and his associates,[5] however, observed evidences of toxicity even after the administration to animals of "chemically pure" streptomycin (800 micrograms streptomycin base per milligram). The "pure" material was free from the "histamine-like" substance but, when administered intravenously to monkeys in daily doses of 25 mg. per kilogram of body weight or higher, produced "a fatty metamorphosis in the liver and, less often, in the kidney." A transient proteinuria developed in 1 animal which had received 200 mg. per kilogram of body weight a day (three to four times the dose used in clinical practice). The hepatic and renal lesions were apparently reversible. In additional experiments in dogs these investigators noted the appearance of albuminuria and cylindruria after ten to fourteen days' treatment with streptomycin (50 or 100 mg. per kilogram of body weight a day), the purity of which was unspecified. A slight degree of tubular necrosis was observed in 1 dog which had shown severe proteinuria. Changes in gait and posture suggestive of a labyrinthine or cerebellar disturbance appeared in 3 of 5 animals. Molitor and his coinvestigators have emphasized that there is a considerable species-variation in tolerance to streptomycin, as rats, mice and guinea pigs showed no significant pathologic changes after the administration of large doses of the drug for periods of several months.

At present, therefore, it appears that (*a*) in order to realize the maximal therapeutic potentialities of streptomycin the drug must be well tolerated on continued administration for several or more months and (*b*) in order to establish the chronic toxicity of the material for man it is desirable to attempt to define the respective roles of the antibacterial substance and the associated impurities.

Accordingly, an investigation has been conducted in a group of human subjects, who underwent a four month period of continuous therapy with highly purified streptomycin sulfate.

MATERIALS AND METHODS

Streptomycin.—Four lots of streptomycin, each consisting of 1 Kg., were used. In general, an individual lot was administered throughout each month of the study. In the preparation of the individual lots, impure streptomycin (approximately 450 micrograms per milligram) was purified and converted to the crystalline calcium chloride double salt. The crystalline salt was then converted by mild treatment to the sulfate to ensure stability. The results of the relevant biologic and chemical analyses, which were performed in the laboratories of Chas. Pfizer & Company, Inc., are presented in table 1.[6] The final product used in the investigation was at least 95 per cent pure. The material was dissolved in 2.0 cc. isotonic solution of sodium chloride prior to injection, and the p_H of the resulting solution was 6.0.

Subjects.—Sixteen adults with active pulmonary or acute hematogenous tuberculosis were the experimental subjects. The group consisted of 4 Negroes, 11 white persons and 1 Chinese. All the subjects were febrile, and some were critically ill at the time of the institution of therapy. In no instance, however, was there any demonstrable evidence of abnormal renal function or tuberculous involvement of the kidneys. Audiometric examinations before treatment revealed abnormal conditions in only 2 subjects. In these persons nerve deafness with a loss of hearing of 9.3 and 12.6 (Co) and 19.3 and 8.8 (Ir) per cent, respectively, was present.

Subsequent to the present study, an additional 15 patients have been treated with this same preparation of streptomycin for periods shorter than one hundred and twenty days. The pertinent observations made in this group are included and separately indicated in the present report.

Technics.—The streptomycin concentrations in the body fluids were determined by the cup plate diffusion method of Stebbins and Robinson, in which Staphylococcus aureus of the S. M. strain is used as the test organism.[7] The urea clearance was calculated according to the formula of Moeller, McIntosh and Van Slyke,[8] and the plasma proteins were measured by the method described by Kingsley.[9] The sulfobromophthalein sodium retention [10] and the thymol turbidity tests [11] were used in the evaluation of hepatic function. Caloric stimulation of the vestibular apparatus was performed by injecting 2.0 cc. of ice water into the external auditory meatus. The reaction was considered to be normal when the time required for the onset of nystagmus was approximately one fourth as long as the duration of nystagmus.[12] All the audiometric examinations were made on a Maico audiometer in a room which is heavily insulated but not completely soundproof.

Protocol of the Investigation.—The subjects remained in bed throughout the period of the investigation and were observed daily for any evidences of drug toxicity. Immediately prior to the institution of streptomycin therapy the status of renal, hepatic, vestibular and auditory functions was determined by the procedures listed in table 2. Subsequent observations were made at the intervals indicated in the table, and complete neurologic examinations were made each week.

Streptomycin Regimen: Three grams of streptomycin (approximately 45 mg. per kilogram of body weight) was given to each subject daily. The total period of therapy was at least one hundred and twenty days, except for 2 subjects who died on the ninety-ninth and ninety-third days, respectively. The material was administered intramuscularly at three hour intervals, in individual doses of 0.375 Gm. The treatment was absolutely continuous in 13 of the 16 subjects. In the remaining 3 the administration of the drug was interrupted for periods of ten, twenty and eighty-six days.

5. Molitor, H.; Graessle, O. E.; Kuna, S.; Mushett, C. W., and Silber, R.: Some Toxicological and Pharmacological Properties of Streptomycin, J. Pharmacol. & Exper. Therap. **86**: 151-173 (Feb.) 1946.

6. We are indebted to the members of the research staff of Chas. Pfizer & Company, Inc., for the use of these data.

7. Stebbins, R. B., and Robinson, H. J.: A Method for Determination of Streptomycin in Body Fluids, Proc. Soc. Exper. Biol. & Med. **59**: 255-257 (June) 1945.

8. Moeller, E.; McIntosh, J. F., and Van Slyke, D. D.: Studies of Urea Excretion: II. Relationship Between Urine Volume and the Rate of Urea Excretion by Normal Adults, J. Clin. Investigation **6**: 427-465 (Dec.) 1928.

9. Kingsley, G. R.: Determination of Serum Total Protein, Albumin, and Globulin by Biuret Reaction, J. Biol. Chem. **131**: 197-200 (Nov.) 1939; Rapid Method for Separation of Serum Albumin and Globulin, ibid. **133**: 731-735 (May) 1940.

10. Mateer, J. G.; Baltz, J. I.; Marion, D. F., and MacMillan, J. M.: Liver Function Tests: General Evaluation of Liver Function Tests, and Appraisal of Comparative Sensitivity and Reliability of New Tests, with Particular Emphasis on Cephalin-Cholesterol Flocculation Test, Intravenous Hippuric Acid Test and Improved Bromsulphalein Test with New Normal Standard, J. A. M. A. **121**: 723-728 (March 6) 1943.

11. Shank, R. E., and Hoagland, C. L.: A Modified Method for the Quantitative Determination of the Thymol Turbidity Reaction of Serum, J. Biol. Chem. **162**: 133-138 (Jan.) 1946.

12. Atkinson, M.: Simple Quantitative Method of Testing Vestibular Function, Arch. Otolaryng. **30**: 916-921 (Dec.) 1939.

Absorption and Distribution of the Streptomycin: The concentration of streptomycin in the blood at the end of the three hour interval between injections (charts 1 and 2) ranged between 7 and 30 micrograms per cubic centimeter of serum and was usually between 10 and 20 micrograms per cubic centimeter. Two

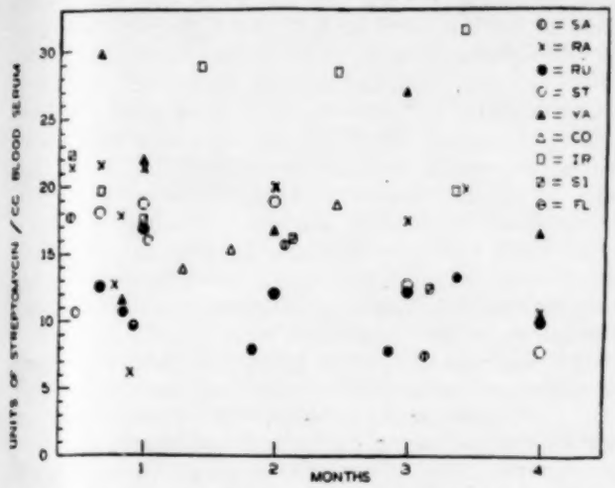

Chart 1.—Serum streptomycin levels. The dosage of 0.375 Gm. was given intramuscularly at three hour intervals. Samples were taken prior to the next three hourly dose.

specimens of pericardial fluid and 1 of pleural fluid, obtained after several days of intramuscular administration, contained amounts of streptomycin approximately equal to those present in the subjects' serum (10.1 to 11.5 micrograms per cubic centimeter). There was no detectable streptomycin in specimens of cerebrospinal fluid withdrawn from 5 subjects after several or more weeks of intramuscularly administered therapy. These values are essentially the same as those reported by other investigators after the use of crude streptomycin.[13]

MANIFESTATIONS OF TOXICITY

Throughout the entire one hundred and twenty day period it was considered advisable to interrupt the therapy of only 2 subjects because of a manifestation of toxicity. In both instances the reactions were anaphylactic in type, and it was possible for both patients to resume treatment subsequently.

Local Irritation.—Despite the administration of the drug at three hour intervals for so long a period, there was remarkably little irritation at the sites of the intramuscular injections. The subjects had all understood that it was planned to terminate the investigation at ninety days. At that time, however, when it was proposed that the investigation be continued for another month, the entire group availed themselves of the opportunity to obtain the additional therapy.

Intrathecal Administration.—Three subjects, who were without evidence of central nervous system disease, were given 0.1 Gm. streptomycin intrathecally dissolved in 10 cc. of isotonic solution of sodium chloride. In 2 of these persons the procedure was well tolerated, and they complained only of a slight headache during the succeeding day. The cerebrospinal fluid cell counts twenty-four hours after the intrathecal injections were 139 and 4 cells per cubic millimeter, respectively. In the third subject the intrathecal administration of the drug was followed by a reaction which was characterized by headache, nausea and vomiting. In this patient the cerebrospinal fluid contained 380 cells per cubic millimeter (95 per cent neutrophils) twenty-four hours after the instillation of the streptomycin. The reaction was complicated by evidences of anaphylaxis, to be discussed subsequently, but the symptoms of meningeal irritation subsided promptly within twenty-four hours.

A fourth subject, who presented minimal evidences of inflammatory disease of the central nervous system, received 0.1 Gm. streptomycin intrathecally in the lumbar region every day for a total period of twenty-eight days. Other than occasional leg pains, which were presumably the result of transient irritation of the nerve roots, the procedure was well tolerated.

Larger amounts of drug (0.2 to 0.375 Gm.) were repeatedly administered by the intrathecal route at forty-eight hour intervals to 6 persons, 5 of whom are not otherwise included in the study. In most instances the 0.2 Gm. dose was well tolerated. Moreover, the 0.375 Gm. dose was also well tolerated in each subject for the first seven to ten days of administration. In some patients among those on each of the two dosage regimens, however, and particularly after the 0.375 Gm. dose had been continued for several weeks, definite evidences of toxicity appeared after the intrathecal injection. The toxic reaction was characterized by somnolence, which at times approached stupor; headache; a slowing of the respiratory rate, and retention of urine. The symptoms usually persisted for twelve to twenty-four hours and then disappeared completely. Nystagmus was noted occasionally during the first few hours immediately after the intrathecal instillation. No sensory changes or persistent sphincteric disorders were observed. Appreciable amounts of streptomycin (4.5 to 17.0 micrograms per cubic centimeter) were always present in the cerebrospinal fluid forty-eight hours after the intrathecal administration of 0.2 to 0.375 Gm. of the drug

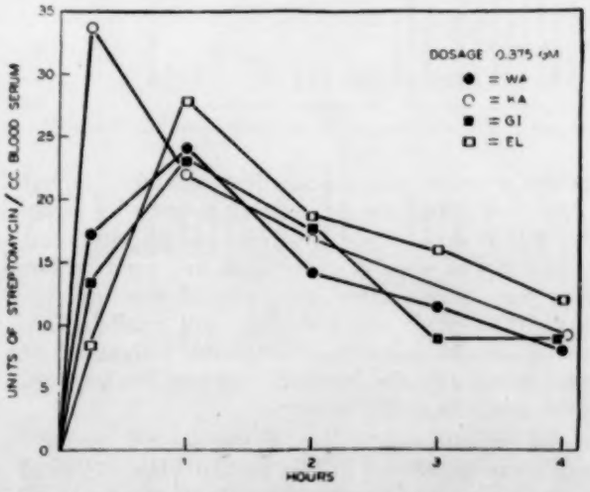

Chart 2.—Four hour absorption excretion tests, showing the concentration of streptomycin in the blood serum.

(table 3). It is possible, therefore, that accumulation of the drug occurred after the repeated intrathecal injections.

Manifestations of Anaphylaxis.—In 2 female subjects (Ro, Ra) definite evidences of anaphylaxis developed on the ninth day of therapy. The reactions were similar to those observed after the administra-

13. Footnotes 1 and 2.

tion of a number of chemotherapeutic agents, for instance, oxophenarsene hydrochloride, sulfonamide drugs, thiouracil and organic gold preparations. In both women the sensitivity to streptomycin was characterized by: an itching maculopapular eruption over the trunk and extremities; increase in temperature; nausea and vomiting; the development of hypotension when administration of the drug was continued, and eosinophilia. The eruption became purpuric in the area distal to a tourniquet in 1 subject. However, the values for the bleeding and clotting times and for the total number of platelets were all within normal limits. Moreover, when the eruption was fading, application of the tourniquet was not followed by the appearance of purpura.

In both subjects the evidences of sensitivity to the drug subsided within one week. During the ensuing weeks the reaction was repeatedly reproduced in mild form by the intramuscular administration of single small (0.037 Gm.) doses of streptomycin. In 1 subject (Ra) it was possible to resume treatment without reaction five weeks after the original institution of therapy. The other subject (Ro) still exhibited evidences of sensitivity at the end of the fifth week but was able to tolerate the standard regimen twelve weeks after the institution of therapy.

TABLE 3.—*Concentration of Streptomycin in the Cerebrospinal Fluid Following Intramuscular or Intrathecal Administration*

Subject	I. M. Only	I. M. and I. T.	Dose I. T., Gm.	Meningitis	Streptomycin Concentration in Cerebrospinal Fluid, Micrograms/Cc.			
Co	+ (after 1 mo. I. T.)	..	.....	+	3.4*			
Ru	+	..	.....	0	0			
	+	..	.....	0	0			
St	+	..	.....	0	0.4			
					Hrs. after I. T. Streptomycin			
					12	24	48	96
Ru	..	—	0.100	0	....	12.0	....	....
Ram	..	+	0.100	0	....	9.7	....	....
Co	..	—	0.100	+	....	9.5*	....	....
Bu †	..	—	0.100	+	47.0	....	....	....
		—	0.100	+	37.7	....	....	....
Sa	..	—	0.100	+	....	....	9.30	....
Wa	..	—	0.100	+	....	....	10.30	....
Ran	..	—	0.200	+	....	....	20.10*	....
		—	0.200	+	....	....	.....	10.3
Sa	..	+	0.200	+	....	....	9.70*	....
Wa	..	+	0.200	+	....	....	20.60	....
De	..	+	0.375	+	....	....	11.10	....
Ran	..	+	0.375	+	....	....	17.00	....
Sa	..	—	0.375	+	....	....	6.25	....
		—	0.375	+	....	....	4.50	....

* Average of 3 to 6 specimens. † Eighteen month old infant.

On the seventy-fourth day of the second course of therapy there developed in this patient (Ro) a moderately acute synovitis, which involved the proximal interphalangeal joints of the hands and feet. At the time of the appearance of the articular involvement an eosinophilia of over 30 per cent was present. The administration of streptomycin was continued for approximately six weeks after the onset of the synovitis. Despite the continuation of therapy, the clinical evidences of joint involvement steadily diminished but had not entirely disappeared three months after the initial symptoms.

Eosinophilia with Questionable or No Eruption.—Eosinophilia appeared in 14 of the 16 subjects at some time during the one hundred and twenty days of streptomycin therapy (chart 3). A percentage of eosinophilia of 5 or more, on at least two occasions, is designated eosinophilia. In 5 instances the eosinophilia first appeared between the ninth and the twenty-third days of therapy, and in 2 of the 5 subjects the onset of eosinophilia coincided with the appearance of a definite (Ro, Ra) or a questionable eruption. The eruption designated as "questionable" consisted of a minimal itching dermatitis which persisted for only twenty-four hours, and which was usually limited to a single area, such as an antecubital fossa, the anterior part of the chest or the face. In 2 patients a minimal conjunctivitis which persisted for one to two days appeared along with slight itching, but in both subjects the conjunctivitis disappeared spontaneously without any residuum. These phenomena were so mild and ephemeral that it was difficult to relate them with any degree of certainty to the administration of the streptomycin. The first appearance of eosinophilia in the other 9 subjects occurred during the second and the third months of therapy. In 1 patient the eosinophilia appeared on the seventy-fourth day of therapy, ten days after the cessation of the intrathecal administration of streptomycin. The eosinophilia varied from an intermittent phenomenon which was present for one or two weeks at a time to a constant finding which persisted for as long as sixty to a hundred days. In all the subjects the percentage of eosinophils fell gradually to below 5 within four to six weeks after the cessation of therapy.

The magnitude and the course of the eosinophilia in 11 subjects is presented in chart 3. In 7 patients the percentage of eosinophils increased to 10 or more and in 2 instances to 36 or above. Other than the 2 instances of characteristic drug rash and the occasional occurrence of transient pruritus, there were no symptoms associated with the presence of the eosinophilia save for the synovitis which appeared in the 1 subject (Ro). A transient leukopenia (3,000 to 4,000 cells per cubic millimeter) without granulocytopenia appeared in 2 persons at the time of the eosinophilia.

Effects on the Kidney.—Cylindruria appeared in 14 of the 17 subjects at some time during treatment with streptomycin. The onset of the phenomenon was striking in 10 persons, as it occurred within forty-eight hours of the institution of therapy. In the others the excretion of casts did not appear until after four to six weeks of treatment. Granular, hyaline and occasionally cellular casts were excreted. In 3 subjects the casts appeared only infrequently and in minimal numbers. In the other 11 patients, however, the cylindruria was essentially constant as long as the urine was highly acid. The centrifuged specimens of acid urine excreted by these persons usually contained 3 to 5 casts per low power field, and occasionally as many as 15 or 20. At the end of the fourth week of streptomycin therapy, the p_H of the urine of 7 subjects was maintained around 5.0 for a three day period by the oral administration of ammonium chloride. In all 7 subjects there was a sharp increase in the cylindruria, and in 4 instances on several occasions innumerable casts were excreted. When the urine was maintained at a neutral or slightly alkaline p_H (7.0 to 7.5) by the administration of sodium bicarbonate, cylindruria was demonstrable in only 1 subject. In general, throughout the period of the

experiment, whenever the p_H of the urine would drop to 5.5 or below, cylindruria would reappear. During the fourth month of the study, the ammonium chloride regimen was reinstituted for a four-day period in 11 subjects of the experiment and in an additional 5 tuberculous patients who were not receiving streptomycin. There was no cylindruria in any of the latter group despite the acidification of the urine. In the streptomycin-treated subjects only minimal and sporadic cylindruria appeared during the three-day period after the cessation of adjuvant alkali therapy. Forty-eight hours after acidification, however, cylindruria appeared in 9 of the 11 subjects.

As the possibility existed that the cylindruria was a phenomenon unique to the particular preparation of streptomycin used, two preparations (streptomycin hydrochloride and streptomycin trihydrochloride calcium chloride complex[14]) of different manufacture were tested in a similar fashion. Cylindruria similar to that observed following the use of the highly purified sulfate was also noted after the administration of these other preparations of streptomycin.

No significant hematuria or albuminuria developed in 15 of the 16 subjects during the one hundred and twenty day period of treatment. Observations on the 1 patient who presented abnormal urinary findings are presented later in detail.

Renal Function.—In 14 of the 16 subjects the values obtained in the determinations of renal function (urea clearance, concentration and dilution and biweekly blood urea nitrogen) all remained within normal limits throughout the period of streptomycin therapy. In 1 person (St) the urea clearance progressively fell from a range of 85 to 100 per cent of normal to 50 to 60 per cent of normal. At no time was there an elevation of urea nitrogen or albuminuria, and this subject was one of the few who never exhibited cylindruria. One patient, however, (Ir, chart 4) manifested definite evidence of impairment of renal function coincidentally with the administration of the drug. This patient was a Negro woman aged 33 with an exudative tuberculosis of the lower lobe of the left lung, which presented the clinical signs of pneumonic consolidation. On entry to another hospital she was believed to have pneumococcic pneumonia, and sulfadiazine and penicillin were administered without obvious effect. The diagnosis of tuberculous pneumonia was subsequently established, and the patient was transferred to the New York Hospital. There was no history of symptoms suggestive of renal disease or previous hypertension, and the blood pressure in millimeters of mercury ranged between 90 and 118 systolic and 55 and 68 diastolic during the experimental period. Previous to the streptomycin therapy the patient had considerable fever, with a maximum daily temperature between 39 and 40 C. (102 and 104 F.). Neither the liver nor the spleen was palpable. The serum albumin ranged between 2.6 and 3.0 Gm. and the values for globulin were between 4.0 and 4.6 Gm., per hundred cubic centimeters. The total erythrocyte count was 3.9 million, with 9 Gm. of hemoglobin. On two occasions during the acute febrile illness, a 2 plus albuminuria without cylindruria occurred, but the other eight pretreatment specimens of urine were all normal. The blood urea nitrogen level was not elevated (10 mg. per hundred cubic centimeters). Immediately prior to therapy, the urea clearance was 97.5 per cent of the average normal value, the maximum specific gravity of the urine was 1.030 and the minimum specific gravity was 1.002. It was believed that the occasional albuminuria was related to the high fever, the hypoproteinemia was a reflection of the long-continued infection and the renal function of this subject was normal. In the light of subsequent events, it is possible that impaired renal function was present before therapy but was masked by increased renal blood flow consequent to the high fever.

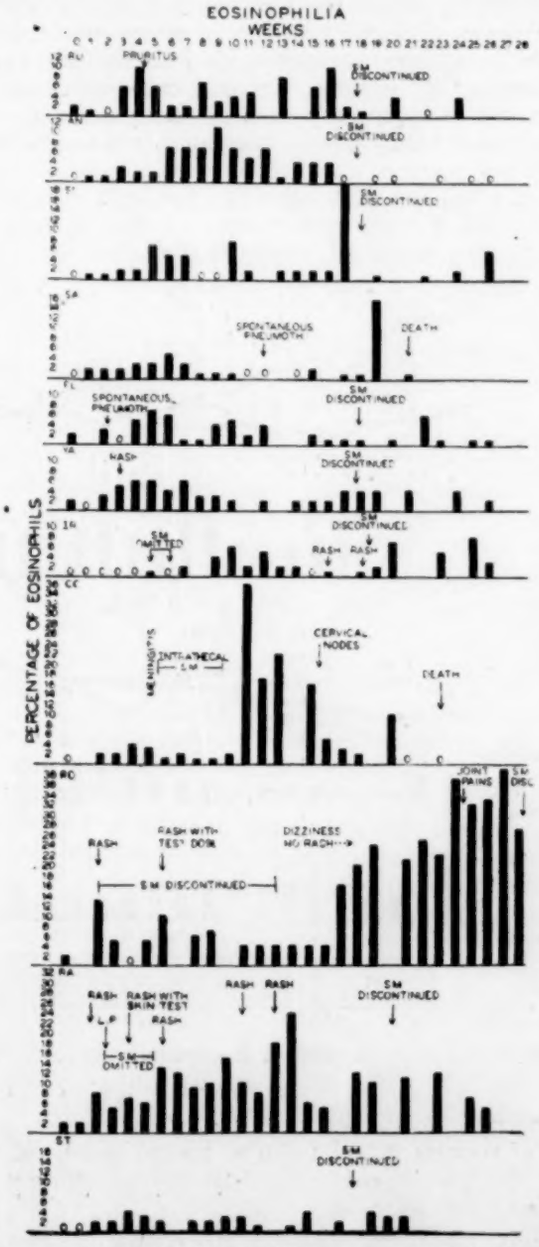

Chart 3.—Relationship of eosinophilia to streptomycin (*SM*) therapy.

Within twenty-four hours of the institution of the streptomycin therapy, albuminuria reappeared and was accompanied by the excretion of 15 to 20 casts per low power field of centrifuged specimens of urine (p_H 5.0 to 6.5). The albuminuria and cylindruria continued throughout the ensuing two month period, including a ten day interval during which streptomycin was not administered. In contrast to that of the other subjects, the cylindruria of this patient could not be eliminated

14. The material for this aspect of the investigation was kindly supplied by Merck & Co., Inc., Rahway, N. J.

by adjuvant alkali therapy, although the number of casts was considerably diminished when an alkaline urine was excreted.

As may be seen in chart 4, the values for the blood urea nitrogen remained within normal limits until the fourth week of therapy, when a rise to 20 mg. per hundred cubic centimeters occurred. At this time (day 30) treatment was interrupted for a ten day period, during which the blood urea nitrogen fell to normal levels. On reinstitution of streptomycin therapy, the blood urea nitrogen again rose within a week to a level of 24 mg. per hundred cubic centimeters. During the ensuing sixty days of therapy, the values for the blood urea nitrogen fluctuated between 16 and 24 mg. per hundred cubic centimeters. A decrease in renal function, as determined by the urea clearance, accompanied the nitrogen retention. At the end of the first two weeks of treatment the urea clearance had dropped to 62 per cent, and at the end of sixty days of therapy it had fallen to approximately 40 per cent. No impairment of the ablity to concentrate urine was ever demonstrable.

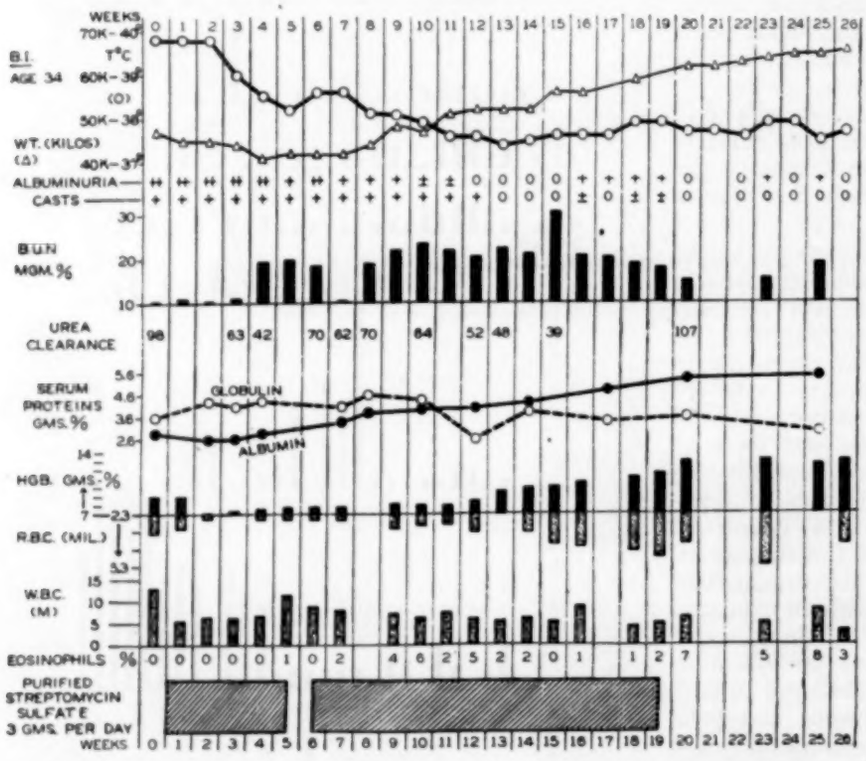

Chart 4.—Course of renal function in patient in whom reversible renal insufficiency developed during streptomycin therapy.

During the third month of observation, despite the continued administration of the streptomycin, the albuminuria decreased and the cylindruria was appreciably diminished. The values for the urea clearance and the elevation of the blood urea nitrogen remained essentially unchanged. Throughout the last thirty of the one hundred and twenty days of treatment, the urea nitrogen in the blood gradually fell to within normal limits, although minimal albuminuria and cylindruria persisted. Shortly after the cessation of treatment, the albuminuria and cylindruria ceased entirely, the value for the blood urea nitrogen was 10 mg. per hundred cubic centimeters and the urea clearance had assumed a normal value (102 per cent). The recovery was maintained during the six week period of subsequent observation. It is conceivably relevant that the arrest and subsequent reversal of the renal insufficiency of this patient occurred during the same period in which her tuberculous pneumonia resolved almost completely.

Histologic Examination.—Three subjects, Co, Sa and Te, had received the highly purified streptomycin sulfate for one hundred and fifty-four, one hundred and forty-two and ninety-three days, respectively, at the time of death. All these subjects had shown a considerable degree of cylindruria at various times during treatment. In all 3 instances gross and microscopic examination of the kidneys at postmortem examination disclosed no abnormalities which were attributable to the streptomycin therapy.

Neurologic Abnormalities.—Vestibular Function: Symptoms of vestibular dysfunction appeared between the seventeenth and the twenty-fifth days of therapy in all 16 subjects. This reaction is characterized by the appearance of a mild headache, which disappears within twenty-four hours and is followed by the development of symptoms which resemble vertigo. The sensations differ from vertigo in that they seem to occur in a linear rather than a circular plane. At the completion of a sudden movement, such as reaching for an object, sitting up or leaning to one side, the afflicted person feels as though the movement was continuing in the same direction in which it had been going. Thus he experiences the sensation either of past pointing or of falling in the direction of the previous movement. Occasionally, a momentary delay in focusing the eyes after a sudden change in position will be noted. At the height of the reaction 1 patient displayed striking pendulum movements, similar to those observed in labyrinthectomized animals. When he assumed the erect sitting position suddenly, he swayed back and forth rhythmically for approximately sixty seconds.

There was a considerable variation in the intensity of the vestibular dysfunction experienced by the different subjects. The reaction was negligible in 6, moderately severe in 8 and severe in 2 members of the group. In 2 subjects in whom the reaction was designated as negligible, the symptoms would occur only after unusually sudden movements; they were fleeting and were predominantly of the ocular variety. In the remainder of the group, however, the symptoms were incapacitating. At the peak of the reaction these subjects were unable to sit up in bed unassisted and with the slightest motion were acutely uncomfortable even when lying flat. They were frequently nauseated, and occasionally they vomited. The symptoms usually persisted in an acute form for seven to ten days and then subsided almost entirely. The disappearance of the acute symptoms occurred with striking rapidity, sometimes within a period of twenty-four hours. In no instance, however, did complete recovery occur with the subsidence of the acute symptoms. Instead, the subjects entered into a phase in which

the symptom was absent during ordinary activity but could be evoked momentarily by an unusual stimulus, such as an abrupt shaking of the head. One subject (An) experienced a second attack of acute symptoms after a two week interval during which the sensations were latent. This person's initial attack of vestibular dysfunction was among the severest in the entire group. Although the second attack was of comparable severity, it disappeared within a period of three days.

In general the stage of latent vestibular dysfunction persisted for approximately sixty days and then disappeared. During the fourth month of therapy all subjects except 1 were completely free from these symptoms while reclining or sitting erect in bed. The exception was the man who had shown the "pendulum" movements. His symptoms also had virtually disappeared at the end of the one hundred and twenty day period of treatment. Four of the subjects, however, who were symptom-free while sitting erect in bed, had difficulty in maintaining balance when an ambulatory regimen was resumed. Ataxia was absent as long as these persons could orient themselves visually with any fixed object. A staggering gait was present, however, when they attempted to walk in the dark or with closed eyes. In these particular instances the symptom has not been disabling and has slowly diminished in intensity during the nine months since the cessation of therapy. In no instance was streptomycin therapy interrupted because of vestibular dysfunction.

A noteworthy feature of the reaction manifested by vestibular dysfunction is the fact that nystagmus was seldom encountered. Only 1 patient (Ph) manifested a sustained nystagmus, although in several other subjects fleeting nystagmoid movements of questionable significance were observed. In a patient not included in this series, treated subsequently with the same lots of streptomycin, a rotary nystagmus was observed.

With the particular technic used, it was not possible to demonstrate at the height of the reaction or subsequently an abnormal response to caloric stimulation of the vestibular apparatus in the majority of the group. In the remainder of the persons a definitely sluggish response to caloric stimulation was observed. It is probable that, by the use of more quantitative technics, it would be possible to demonstrate a hypofunction of the vestibular apparatus in most, if not all, persons who experience this reaction to streptomycin.

Cochlear Function: Deafness developed in 2 of the 16 subjects during the period of treatment. The loss of hearing was virtually complete in 1 person and amounted to more than 50 per cent of total hearing in the other. In both instances the deafness appeared after the repeated intrathecal administration of streptomycin for the treatment of tuberculous meningitis. Deafness, virtually complete in extent, has also developed in 3 of 15 patients treated subsequently with the same preparation of streptomycin, but who were not included in the present study. Two of these persons also had received repeated intrathecal instillations of streptomycin for tuberculous meningitis, and the third patient had decidedly impaired renal function. Thus, in a total group of 31 patients treated with the highly purified streptomycin, deafness appeared in 4 subsequent to intrathecal treatment for meningitis and in a fifth who had uremia.[14a]

It was not possible to observe the effect of the cessation of treatment with the drug on the deafness of the 2 patients of the present study because of a fatal outcome of the tuberculous meningitis in both instances. In the patient (Co) in whom a 50 per cent loss of total hearing developed during intrathecal administration, the subsequent administration of streptomycin by the intramuscular route for a ninety day period caused no increase in the deafness.

No tinnitus or impairment of hearing developed during or subsequent to the streptomycin treatment in any other of the 14 subjects. Moreover, in these same persons, repeated audiometric examinations failed to disclose any loss of auditory function in the zones beyond the limits of clinical detection.

Other than vestibular dysfunction or deafness, repeated neurologic examinations of the entire group revealed no abnormal findings during or subsequent to the one hundred and twenty day period of streptomycin therapy.

Miscellaneous Observations.—Anemia did not appear in any of the subjects after the institution of streptomycin treatment. In several persons anemia which was present before treatment disappeared with improvement in the status of the infection.

Leukopenia, without granulocytopenia, appeared in 2 subjects in conjunction with the appearance of a drug sensitivity reaction. In another subject (Ph) leukopenia (2,000 to 3,000 cells per cubic millimeter) developed during the second month of therapy. A relative granulocytopenia was also present. The administration of streptomycin was not interrupted. The leukopenia persisted for approximately sixty days but eventually disappeared. It is doubtful that this phenomenon represented a toxic reaction to the streptomycin. The subject, who is a radiologist, states that his total leukocyte count has "always been very low." Moreover, at the start of streptomycin treatment he was suffering from acute hematogenous tuberculosis.

Thrombocytopenia was never observed. Determinations of the bleeding, clotting and prothrombin times were made on several occasions, but normal values were always present.

There was no evidence that the administration of the streptomycin resulted in any damage to the liver. The values for the retention of sulfobromophthalein sodium were within normal limits before and throughout the experiment in 9 of the 16 subjects. In the remaining persons, all of whom had acute hematogenous tuberculosis, 16 to 36 per cent of the dye was retained (at forty-five minutes) in the test performed immediately before the institution of therapy. Subsequent observations when the acute infection had largely subsided revealed retention values which were within or close to the normal limits. In 11 of the series, the values for the thymol turbidity were within the normal range before and during the period of treatment. Values slightly higher than normal (5.8 to 10 units), observed in 5 subjects, fell to normal as the tuberculous infections improved. Variations in the amount of plasma protein and the respective amounts of albumin and globulin observed during therapy were no greater than could be attributed to the variations in the state of the tuberculous infection.

Visual acuity and the visual fields of all the subjects remained unimpaired during the one hundred and twenty day period of streptomycin therapy.

14a. Examination of the brains of 4 of these subjects revealed liquefaction necrosis in the ventral cochlear nuclei. Similar changes were noted in the inferior vestibular nucleus in 1 of 2 brains which were studied. These observations are reported elsewhere (Stevenson, L. D.; Alvord, E. C., Jr., and Correll, J.: Proc. Soc. Exper. Biol. & Med., to be published).

COMMENT

From the foregoing observations it is evident that 0.375 Gm. of highly purified streptomycin sulfate administered at three hour intervals for one hundred and twenty days is remarkably well tolerated by tuberculous persons. It is also evident, however, that all the manifestations of toxicity which may occur from the use of impure streptomycin (histamine reaction excepted), have been observed after the administration of the highly purified streptomycin sulfate. The question immediately arises as to whether the observed instances of toxicity were produced by streptomycin per se, by residual impurities in the highly purified material or by a change in the nature of the compound which conceivably might occur during its conversion to the salt. It is unlikely that the sulfate itself is responsible, for identical toxic manifestations have occurred after the use of streptomycin hydrochloride. Moreover, the total daily dose of sulfate (0.6 Gm.) is well within the limits of the tolerated dosage of this substance.

Although the streptomycin used in the present investigation was prepared from crystalline material, it does not necessarily follow that the material was entirely pure. Craig and his fellow workers[15] have amply demonstrated by means of the counter-current differential phase method of extraction that such substances as synthetic antimalarial compounds and crystalline penicillins are by no means single chemical entities. The antibacterial potency of the streptomycin used in the present study coincided with the theoretic potency for pure material. The acute toxicity observed on the intravenous injection of the material to mice (table 1) was not so low as has been occasionally observed from the use of considerably less pure material. However, it has not been established that a correlation exists between the degree of purity of a preparation of streptomycin and its acute toxicity on intravenous administration to mice.[16]

On the basis of the manufacturer's examinations, in which the currently available biologic and chemical technic were employed, it has been determined that the four lots of streptomycin used in the present investigation were all at least 95 per cent pure (table 1). Thus, in the interpretation of the toxic reactions observed in the present investigation, the significance of the less than 5 per cent of adventitious substances present in the streptomycin must receive consideration. It should also be emphasized that the clinical significance of the various manifestations of toxicity can be evaluated at this time only on the basis of a four to eight month period of observation. The possibility exists that toxic reactions now regarded as minor might assume greater importance on long-continued observation.

There are innumerable chemical compounds which on occasion will give rise to manifestations of anaphylaxis on administration to human subjects. Thus, either the antibacterial substance or impurities might have been responsible for the reactions of sensitivity to the drug which were observed in some persons in the present study.

The moderately severe sensitivity reactions which appeared in 2 subjects were clinically similar to those which have been observed after the administration of organic arsenicals, sulfonamide compounds, salts of gold, penicillin, thiouracil and other chemotherapeutic agents. With the streptomycin reactions, as with the similar reactions to other agents (notably arsenic), the duration of clinically detectable sensitivity was self limited. In both subjects it was eventually possible to renew the administration of streptomycin without producing sensitivity phenomena other than the eosinophilia. It is conceivable that, if streptomycin therapy had been continued despite the appearance of the reactions, the ultimate outcome would have been the same. However, from experience with the similar reactions to other agents, it is not unlikely that in some patients, perhaps one half, the continuation of therapy in such circumstances will be followed by more serious anaphylactic phenomena. Therefore, unless the indications for streptomycin therapy are urgent, it seems advisable in the presence of such reactions to interrupt therapy for three to eight weeks or until the period of clinically demonstrable sensitivity to the drug has passed.

The appearance of eosinophilia in 14 of the subjects is a disquieting phenomenon, in view of the work of Rich and others,[17] on the possible association of sensitivity to the drug with the development of diffuse vascular disease. During the period of observation, however, there was only 1 instance of synovitis and none of arthritis, myositis or other symptoms suggestive of diffuse vascular disease. The possibility that the eosinophilia was related to the effect of the drug on the tuberculous infection can neither be affirmed nor denied.

It is probable that the development of cylindruria without other evidences of renal disease is not in itself a reaction of serious clinical significance. This would be particularly the case if it could be demonstrated that the concomitant administration of alkali actually prevents, rather than masks, the phenomenon. The cylindruria presumably results from damage to the epithelium of the proximal convoluted tubules. The reason for this assumption is the fact that these structures were extensively involved in a fatal nephrosis which was presumably attributable to therapy with impure streptomycin.[4] Moreover, in unpublished observations in this laboratory, 1 of 3 dogs which received large doses of impure streptomycin sulfate died in uremia and showed damage to the proximal convoluted tubules on postmortem examination. It should be emphasized, however, that in the lesion produced in the dog glomerular changes were prominent and the tubular lesions were minimal.[4]

If the cylindruria observed in the present investigation arose from the proximal convoluted tubules, it is conceivable that alkalinization of the urine did not prevent the phenomenon but merely facilitated the solution of the casts. If the sole effect of alkalinization were to dissolve casts already formed, however, it would not be anticipated that a change in the p_H of the urine from 6.0 to 5.0 would result in such an increase in cylindruria as was observed in the present study. It should be possible to establish the precise effect of alkalinization on the cylindruria which accompanies streptomycin therapy by suitable experiments in dogs.

The nitrogen retention and reduced renal function which appeared in 1 subject presumably represents

15. Craig, L. C.; Golumbic, C.; Mighton, H., and Titus, E.: Identification of Small Amounts of Organic Compounds by Distribution Studies: III. The Use of Buffers in Counter-Current Distribution, J. Biol. Chem. **161:** 321 (Nov.) 1945. Craig, L. C.; Hogeboom, G. H.; Carpenter, F. H., and duVigneaud, V.: Separation and Characterization of Some Penicillins by the Method of Counter-Current Distribution, ibid., to be published.

16. Molitor, H.: The Pharmacology of Streptothricin and Streptomycin, Ann. New York Acad. Sc. **48:** 101-117 (Sept. 27) 1946.

17. Rich, A. R.: Role of Hypersensitivity in Periarteritis Nodosa as Indicated by Seven Cases Developing During Serum Sickness and Sulfonamide Therapy, Bull. Johns Hopkins Hosp. **71:** 123-140 (Sept.) 1942. Longcope, W. T.: Serum Sickness and Analogous Reactions from Certain Drugs Particularly Sulfonamides, Medicine **22:** 231-286 (Sept.) 1943.

a more advanced form of the same process which was characterized only by cylindruria in the other patients. It is possible that this subject had undetectable renal damage prior to therapy. Albuminuria and cylindruria appeared immediately after the institution of streptomycin, the blood urea nitrogen rose, and the urea clearance fell within the ensuing three weeks. Moreover, during the ten day interval (day 30 to day 40) in which no drug was administered, the blood urea nitrogen returned to a normal level although the urinary abnormalities and the reduced urea clearance remained unchanged. During the second two months of therapy, however, in association with a pronounced improvement in the subject's tuberculous infection, the albuminuria and cylindruria virtually disappeared. The results of urinalyses and renal function tests did not become entirely normal until the streptomycin therapy had been discontinued.

Thus, whether the observed evidences of renal damage resulted solely from the drug or represented an effect of the drug on diseased kidneys, it appears that the process was arrested and definite improvement occurred despite the continued administration of streptomycin.

It is probable that the observed effect on the kidney is produced by streptomycin itself and not by an accompanying impurity. If the latter were responsible, it would be necessary to postulate the existence of an unusually nephrotoxic substance. On the regimen used, the total daily dose of "impurities" must have been small, and yet the cylindruria frequently appeared within seventy-two hours of the institution of therapy.

It also appears that the neurologic reaction was produced by the drug and not by associated impurities. Although the degree of vestibular dysfunction observed in the present study was seldom severe, it has not been possible to establish unequivocally that the reaction was uniformly less severe than that produced by streptomycin containing 30 to 50 per cent "impurities."[3] The possibility exists, however, that the highly purified material is less neurotoxic than impure material, and it may subsequently be possible to affirm or deny this hypothesis.

The mechanism by which the vestibular dysfunction is produced is not established. Presumably the site of this action of the drug is centrally situated, as the loss of labyrinthine function is bilaterally symmetric.[18] The reaction may be an intoxication which is reversible up to a point but which results in more persistent damage if the administration of streptomycin is continued. The ataxia produced in dogs by the administration of large doses of impure streptomycin (0.180 Gm. per kilogram of body weight daily) was notably severer in the evening after the last daily dose than in the morning when no drug had been administered for twelve hours.[4] Moreover, in human beings the interval between the institution of streptomycin therapy and the time of the onset of symptoms of vestibular dysfunction appears to be directly related to dosage. On the 3.0 Gm. a day regimen used in the present study the reaction appeared on approximately the twenty-first day. With larger daily doses the reaction has been observed at an appreciably earlier period, and with smaller doses (1 to 2 Gm. a day) it usually has been delayed until approximately the twenty-eighth day of treatment.[18] Although precise observations are not yet available, it appears that the reaction does not become evident at all if a daily dose of 3 Gm. or less is administered for only a short period.

The disappearance of all symptoms of vestibular dysfunction despite the continued administration of streptomycin presumably reflects the activation of compensatory mechanisms rather than the restoration of vestibular function.[18] The duration of the period of depressed vestibular function is not established, but it is possible that the condition may be permanent. In the present investigation complete symptomatic recovery occurred in all subjects. However, if symptomatic recovery is dependent on compensatory mechanisms it is conceivable that the degree of recovery might not always be complete. On the basis of an extensive experience with the clinically available streptomycin, Brown and Hinshaw[3] have suggested that symptomatic recovery may be appreciably less complete in elderly persons.

The fact that, among 31 patients treated with highly purified streptomycin, deafness occurred only after intrathecal administration of the drug or in the presence of well defined renal insufficiency suggests that this reaction may be the result of overdosage. Support for this opinion is afforded by the study of Brown and Hinshaw, in which deafness was observed only after intrathecal administration of streptomycin or in patients who had received a daily dose of 5 to 10 Gm. of the drug by the intramuscular route. In both the Mayo Clinic study and the present investigation the majority of the persons in whom deafness developed during streptomycin therapy were patients with tuberculous meningitis. It is possible that in many instances the meningitis rather than the drug therapy was responsible for the production of the deafness. However, 1 of the subjects of the present investigation in whom total deafness developed had acute hematogenous tuberculosis without any evidence of involvement of the central nervous system.

It is evident that highly purified streptomycin is a chemotherapeutic agent of low toxicity, since it was possible to administer moderately large doses of the drug for such a long period to persons who were seriously ill. It is also evident that the drug is by no means innocuous, for it produces eosinophilia and the symptoms of vestibular dysfunction with uniformity, and, in large doses, may produce deafness.

An evaluation of the toxicity of a chemotherapeutic agent cannot be made with precision without consideration of the particular diseases against which the drug is to be employed. It would seem that the long-continued administration of streptomycin will be employed principally in the treatment of tuberculosis and, less frequently, in acute brucellosis and certain instances of bacterial endocarditis. On the basis of the present investigation it appears that the toxicity of highly purified streptomycin is sufficiently low to justify its long-continued administration to patients with actively progressing tuberculosis and other comparably serious infections. Conversely, it appears that streptomycin should not be employed in the treatment of relatively benign infections, such as recently developed minimal tuberculosis or chronic brucellosis, until the question of possible late effects resulting from the use of the drug can be determined.

SUMMARY

1. An investigation of the toxicity of streptomycin was made in a group of tuberculous subjects, who received 3 Gm. of highly purified streptomycin sulfate daily for one hundred and twenty days.

18. Fowler, E. P., Jr., and Seligman, E.: Otic Complications of Streptomycin Therapy, J. A. M. A. **133**: 87-91 (Jan. 11) 1947.

2. It was necessary to interrupt therapy in only 2 patients. In both instances the reactions to the drug were anaphylactic in character, and it was possible to resume treatment eventually in both subjects.

3. The highly purified streptomycin caused appreciably less irritation at the site of intramuscular injection than did the drug available for general clinical use.

4. The repeated intrathecal administration of 0.1 Gm. of streptomycin was well tolerated. Larger amounts (0.2 to 0.375 Gm.) were well tolerated in some instances but at times produced untoward reactions of a potentially serious nature.

5. Except for the so-called histamine reaction, instances of all of the previously described manifestations of toxicity to streptomycin were observed after the use of the highly purified material. In addition, an intermittent or sustained eosinophilia ranging between 5 and 39 per cent was noted in 14 of 16 subjects.

6. Symptoms of vestibuiar dysfunction of variable severity appeared uniformly on approximately the twenty-first day of therapy. Complete symptomatic recovery eventually occurred in all subjects. The recovery was presumably a result of the activation of compensatory mechanisms rather than of the restoration of labyrinthine function. It is not possible to establish at this time whether the neurologic reaction observed in this study was less severe than the reactions which have occurred after the use of impure material.

7. Deafness developed in 2 of the 16 subjects in the study and in 3 persons treated subsequently with the same preparation of streptomycin. Four of the instances of deafness occurred after the intrathecal administration of the streptomycin, and the fifth developed in a subject with pronounced renal insufficiency.

8. Cylindruria appeared intermittently in the majority of the subjects, and it was present uniformly when a highly acid urine was excreted. Reduction in renal function appeared in only 2 persons, and in 1 of these the restoration of normal function occurred despite the continued administration of the drug.

CONCLUSIONS

The immediate toxicity of highly purified streptomycin sulfate on long-continued administration is sufficiently low to justify the use of the drug in the treatment of serious protracted infections, such as most forms of tuberculosis. As streptomycin can produce potentially serious toxic reactions, however, it is inadvisable to use the drug in the treatment of generally benign infections, such as recently acquired pulmonary tuberculosis of minimal extent.

Vaccinia.—The virus of vaccinia, although not yet obtained in crystalline form, has been obtained in a state of great purity (McFarlane and others, 1938, 1939; Smadel and Hoagland, 1942). Like the bacteria and the mosaic viruses, the vaccinia virus is composed at least in part of nucleoprotein. In addition, it contains carbohydrate and fat. There is also evidence of the presence of complex enzyme systems (flavine, adenine, dinucleotide, biotin and copper), some of which at any rate are related to respiratory activity of living cells. McFarlane et al. (1939) suggest that the vaccinia virus particles have a loose outer shell of lipoid, a structural arrangement analogous to bacteria.—Van Den Ende, M.: Laboratory Aspects of Some Recent Advances in Medicine, *South African M. J.*, April 26, 1947.

VITAMIN D ("ERTRON") THERAPY IN ARTHRITIS

Treatment Followed by Massive, Metastatic Calcification, Renal Damage and Death

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Several instances of high potency vitamin D ("ertron") intoxication have been published lately in the medical literature; all patients recovered except 1 infant, who died and whose postmortem findings showed calcification in the renal tubules.[1] To our knowledge the case which we report is the first in which death followed the long-continued use of this preparation by an adult and in which autopsy confirmed the diagnosis of vitamin D intoxication. The case is reported because it further proves the danger of high doses of vitamin D and of the regrettable practice of noncontrolled self medication with some of the vitamins, and because it disproves the unwarranted claim of harmlessness made by some of the manufacturers of high potency vitamin D preparations.

REPORT OF A CASE

First Admission.—A woman aged 63 was admitted to Goldwater Memorial Hospital Dec. 28, 1942. She was badly crippled by a rheumatoid arthritis of thirteen years' duration. In the two years prior to her admission to the hospital she received one hundred injections of a gold preparation with temporary improvement.

Signs of deforming arthritis were found in several joints, predominantly in knees, elbows, wrists and fingers. Roentgenograms of these joints showed a moderately advanced rheumatoid arthritis without any suggestion of calcinosis. Laboratory data, including complete blood count, urinalysis and blood chemistry tests were essentially normal, except for a moderate secondary infectious type of anemia and a trace of albumin in the urine. During her stay at the hospital the patient received routine physiotherapy for the joints involved and afterward roentgen irradiation, which, however, had to be stopped after she became ill with anemia and diarrhea. In July 1943 the patient left the hospital in a somewhat improved condition.

Second Admission.—On July 4, 1945 the patient was readmitted and gave the history that after she left the hospital she went to Arizona for a change of climate. While there, on the advice of her private physician, she started to take daily 150,000 to 200,000 units of vitamin D as "Ertron" capsules (50,000 U. S. P. units each). This she continued for about fourteen months without any improvement. After spending eighteen months in Arizona the patient, on her way to the

From the Second Medical Division of Goldwater Memorial Hospital.

Because of lack of space, this article is abbreviated in THE JOURNAL by omission of part of the text, footnotes and illustrations. The complete article will appear in the author's reprints.

1. Wolf, I. J.: Safety of Large Doses of Vitamin D in the Prevention and Treatment of Rickets in Infancy, J. Pediat. **22**: 707, 1943.

1. (*a*) Abrams, N. R., and Bauer, W.: Treatment of Rheumatoid Arthritis with Large Doses of Vitamin D: Critical Evaluations, J. A. M. A. **111**: 1632 (Oct. 29) 1938. Slocumb, C. H.: Vitamin D in the Treatment of Infectious Arthritis, Ann. Int. Med. **16**: 241 (Feb.) 1942. Comroe, B. I.: Arthritis and Allied Conditions, Philadelphia, Lea & Febiger, 1944, pp. 498-499. Freyberg, R. H.: Treatment of Arthritis with Vitamin and Endocrine Preparations: Emphasis of Their Limited Value, J. A. M. A. **119**: 1165 (Aug. 8) 1942. Freeman, S.: Irradiated Ergosterol Poisoning, Correspondence, ibid. **119**: 968 (July 18) 1942. Wolf, I. J.: Safety of Large Doses of Vitamin D in the Prevention and Treatment of Rickets in Infancy, J. Pediat. **22**: 707 (June) 1943. (*b*) McChesney, E. W., and Messer, F.: The Metabolism of Calcium and Phosphorus as Experienced by Various Activated Sterols, Am. J. Physiol. **135**: 577, (Feb.) 1942.

East, consulted a physician in Chicago. He found pronounced symptoms of anorexia and vomiting. He had a series of gastrointestinal roentgenograms taken, with negative results. The patient continued to take the high potency vitamin D preparation after returning to New York until March 1945, when on the advice of another physician she discontinued it. At this time a draining abscess developed on the heel of the patient's right foot, and there was tenderness of the gums and teeth.

Roentgen examination of her teeth revealed many small apical abscesses, and all her teeth were extracted. During the next few months her foot continued to drain, and she then noticed similar areas on the other foot and on the backs of her hands. About three weeks before her second admission her left knee became uniformly swollen. During the last six months she had been extremely weak and had lost about 40 pounds (18 Kg.) because of decided loss of appetite, continuous nausea and frequent spells of vomiting. The patient had complained of severe headaches at the back of her head. She had generalized pruritus for five months without eruptions. She also had a cough productive of brownish sputum. Repeated attacks of frequency and burning on urination also were noted. There was no apparent fever but the patient had occasional chilly sensations.

Physical Examination.—On admission examination showed an emaciated, severely crippled, chronically ill, middle-aged woman, hardly able to move. The skin showed numerous scratch marks but no eruption. There was a tender mass about the size of a walnut, not freely movable, over the anterior portion of the right sternomastoid muscle. A lymph node the size of a pecan was found in the right axilla, and there were several smaller

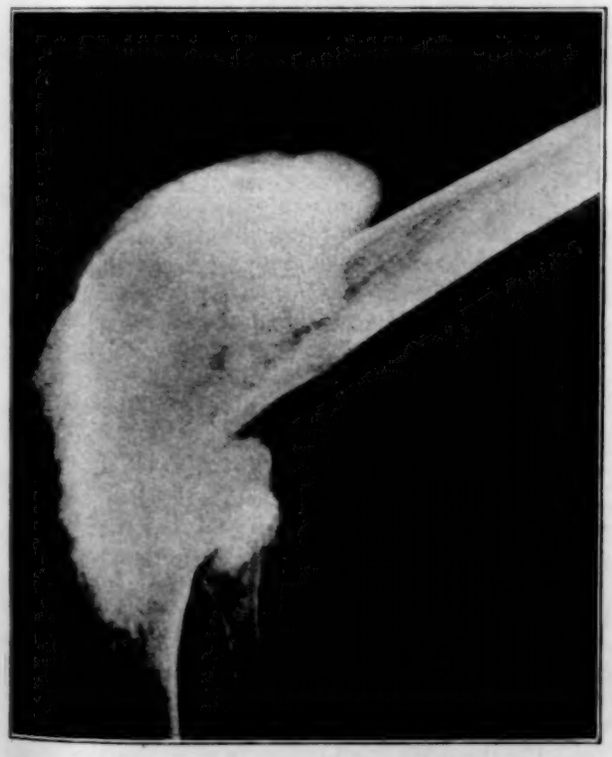

Fig. 2.—Left knee showing massive heterotopic (metastatic) calcification on Aug. 22, 1945. Calcium fills out completely the articular bursae. There are also calcific deposits in the soft tissue adjacent to the articular space. The popliteal artery shows calcification (lateral view).

nodes in both inguinal and femoral areas. None of the nodes was tender, all were discrete and freely movable. The extremities showed appreciable wasting with severe articular deformities of the hands, feet, wrists, elbows and knees; all were extremely painful on motion. The fingers were spindle-shaped, the skin shiny. There was a draining abscess in the right heel with a punched out ulceration. Distinct multiple swellings were seen on the backs of the hands and on the dorsal aspect of the left foot. These swellings varied in size from a pea to a walnut, were extremely tender and had a doughy consistency. The left knee showed an exceedingly large uniform swelling. Examination of the lungs revealed essentially normal conditions except for a few moist rales in the left axilla. The heart was

Fig. 5.—Black and white photograph of a "kodachrome" picture taken at autopsy and showing calcinosis of the renal artery.

normal. The liver and spleen were not palpable. (Aspiration material from the knee is shown on figure 1.)

Laboratory Data.—Examination of the blood on admission was as follows: Red blood cells 2,500,000; hemoglobin 6 Gm., white blood cells 7,800, with a differential count of 77 per cent polymorphonuclears, 12 per cent lymphocytes, 4 per cent monocytes and 1 per cent eosinophils. The urine was clear, yellow and alkaline, with specific gravity 1.012, albumin 2 plus, sugar 1 plus, and occasional epithelial cells in the sediment. The Wassermann test was negative; the level of nonprotein nitrogen was 96 mg., blood urea nitrogen 58 mg. and fasting blood sugar 100 mg. per hundred cubic centimeters. On admission the blood pressure was 125 systolic and 85 diastolic, the pulse rate 96, the respiratory rate 18 and the temperature 99 F.

Course.—Three days after admission the patient became acutely ill and vomited several times but remained afebrile. At this time Staphylococcus aureus was reported in the culture from the draining abscess on the right heel. Incision and drainage of the multiple abscesses was performed, and a biopsy of the lymph node was made. All these showed that the abscesses were not real abscesses and that they and the excised lymph node contained whitish yellow gritty material, which under microscope proved to consist almost entirely of calcium. Biopsy of one of the masses on the back of the left hand showed chronic, nonspecific, productive inflammatory reaction with calcinosis.

Penicillin therapy was started at this time because of the presence of Staphylococcus aureus in the culture.

Most of the roentgenograms of the joints revealed massive deposits of calcium around the articulations, especially in the left knee, where the calcium completely filled the articular bursae, and in the left ankle (figs. 2, 3 and 4).

On August 18 the nonprotein nitrogen was 129 mg. per hundred cubic centimeters, and the patient appeared to be failing rapidly. She was given large amounts of parenteral fluid together with oral ammonium chloride and ammonium mandelate in an attempt to acidify and increase the urinary output. A spinal tap done two days before her death was nonrevealing. The patient refused to eat, became weaker and died in uremia on Sept. 8, 1945.

Subsequent Laboratory Data.—Laboratory examinations following admission showed rapidly rising nonprotein nitrogen levels of 129, 133 and 153 mg. per hundred cubic centimeters, and six hours before her death there was a urea nitrogen determination of 107 mg. and nonprotein nitrogen of 172 mg. per hundred cubic centimeters. The carbon dioxide combining

power stayed within normal limits, being 68 per cent and 46 per cent until the day of death, when it dropped to 35 per cent. The total protein was 6.6 mg. per hundred cubic centimeters, with an albumin/globulin ratio of 4.9/1.7. The blood calcium determination on Aug. 31, 1945 was 147 mg. per hundred cubic centimeters, phosphorus 6 mg. per hundred cubic centimeters and alkaline phosphatase 9.6 Bodansky units. The calcium level was 130 mg. per hundred cubic centimeters when the test was repeated one week later just before the death of the patient. Urinalysis continued to show an alkaline urine with a low specific gravity, a persistent albuminuria of 1 to 2 plus and an essentially clean sediment on microscopic examination, except for the large amounts of calcium phosphate crystals.

Final Anatomic Diagnosis.—The final diagnosis was calcinosis involving the joints of the extremities, the sternoclavicular joints, the costosternal articulations, subcutaneous tissue, the myocardium, the lungs, pancreas, parathyroid glands and the iliac and renal arteries. Apart from the calcinosis, the salient points of the gross pathologic diagnosis were: chronic rheumatoid arthritis, rheumatoid valvulitis of the mitral valve, chronic pericarditis with calcium deposits, aspiration lobular pneumonia and pyelonephritis. (The calcification of the renal artery is illustrated in figure 5.)

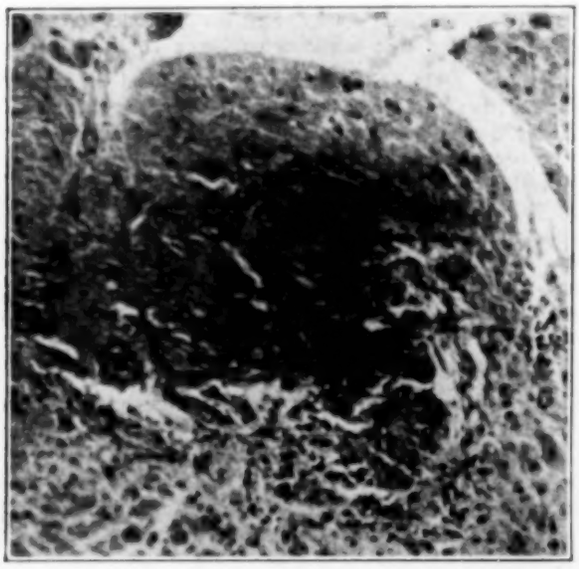

Fig. 6.—Masses of calcified tissue in the myocardium of the left auricle of the heart.

ABSTRACT OF MICROSCOPIC DESCRIPTION

Heart.—In the heart there were large, poorly circumscribed granulomatous lesions replacing the muscle fibers. These were made up of hyalinized connective tissue which was partially calcified, fragmented edematous collagen fibers, fibrocytes and pyknotic nuclear fragments. About some of the calcified areas were bizarre giant cells which appeared to be of the foreign body type. There were also a few Anitschkow myocytes and lymphocytes. These plaques were poorly vascularized, but in the surrounding myocardium there were many dilatated capillaries.

The epicardium of the left ventricle presented a bizarre picture. Over the surface were fragments of an exudate which was fibrinoid and also in a few places appeared partially calcified. There were rows of fibroblasts arranged at right angles to the surface. Elastic tissue stains of the left auricle showed fragmentation and proliferation in the region of the calcified lesions. (Figure 6 shows calcification in the myocardium.)

Lungs.—The alveolar septums of the lungs were greatly thickened by fibrous tissue, and within this were spicules of calcium and giant cells, some of which resembled those cells in giant cell tumors of bone; others were definitely of a foreign body type. There were a number of recognizable bronchi present which were dilatated, and the epithelium of these was partly calcified (fig. 7).

In the midst of solid sheets of fibrous tissue were small areas of granulation tissue and fragmented polymorphonuclear cells similar to those seen in the myocardium.

Renal Artery.—Sections of the renal artery showed large amounts of intimal sclerosis with splitting and reduplication of the internal elastica. There were flecks of calcium throughout the intima.

Parathyroid.—In one of the parathyroid glands there was a small colloid cyst lined by a single layer of flat epithelium. The overall size of the gland was not increased by this. The cell types were not unusual. The other gland was fragmented due to the presence of large amounts of calcium. Other cells were large and multinucleated and placed in the midst of proliferating fibrous tissue (fig. 8).

Kidneys.—Calcium deposits were found in the glomerular capsules. Some of the tubules of the kidneys (fig. 9) also showed calcification.

COMMENT AND SUMMARY

The history, the physical, laboratory, roentgen and pathologic data of this case furnish fairly conclusive evidence that this patient suffered and died of high potency vitamin D, "ertron" intoxication. There were no signs of calcinosis or renal insufficiency at her first stay at the hospital in 1942-1943. At the second admission she had massive calcinosis, extensive renal damage as evidenced by biopsy material, by pronounced hypercalcinemia and azotemia and by roentgen pictures of the affected joints. She died of uremia, and the gross pathologic observations showed massive calcification in and around several joints of the synovial membranes, soft tissues, lymph glands and the renal and iliac arteries.

On microscopic examination extensive deposits of calcium were found in the myocardium, lungs, parathyroid glands and pancreas, in the tubules and glomeruli of the kidneys and in the bronchial epithelium. The only event which occurred between the first and second admissions to which these changes can be attributed was the huge amount of "ertron" (150,000 to 200,000 units daily for about fourteen months) which the patient took for her rheumatoid arthritis.

As to the mode of action of high potency vitamin D intoxication, the experimental data and the evidence presented by this and other cases of vitamin D intoxication seem to indicate that tissue damage sometimes precedes, at other times follows, hypercalcemia. Apparently a vicious circle is created by the vitamin D, in which the higher the blood calcium level (or the greater its fluctuation, according to Ham and Portuondo[9]) the more extensive is the resultant calcification of tissue. On the other hand the more extensive the damage to the kidneys through the calcinosis, the less capable they are of excreting the concentrated calcium from the body fluids; further precipitation of calcium and further damage to the kidneys result.

At least that was the chain of events which occurred in the case reported here.

9. Ham, A. W., and Portuondo, B. C.: Relationship of Serum Calcium to Pathological Calcifications of Hypervitaminosis D, Arch. Path. **16**: 1 (July) 1933.

PULMONARY CALCIFICATION IN RELATION TO SENSITIVITY TO HISTOPLASMIN

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and
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Senior Surgeon, U. S. Public Health Service

It has recently been suggested that in the central eastern region of the United States there is a disease or a group of diseases which closely simulates tuberculosis. This has been indicated by the observation of pulmonary calcification in persons who are negative reactors to tuberculin but in whom the reaction to histoplasmin is positive. Until the past decade pulmonary calcification in the presence of a negative reaction to tuberculin has been considered a manifestation of a disturbance of the allergic mechanism, but the more probable explanation is that there is another disease or group of diseases which account for many instances of pulmonary calcification. That this is a likely possibility is demonstrated by the striking similarity in some instances of coccidioidomycosis to tuberculosis during the active and the end stages of disease.

Christie and Peterson [1] and Palmer [2] have shown a correlation of sensitivity to histoplasmin with pulmonary calcification in tuberculin-negative persons. Emmons [3] and Smith [4] have indicated that sensitivity to histoplasmin may not be specific. Whether the antigen is specific for present or past histoplasmosis is of secondary concern at the moment; of primary importance is the suggestive evidence of a disease which simulates tuberculosis and is apparently benign in many of its aspects. If histoplasmosis were to be considered the major cause of tuberculin-negative pulmonary calcification in the central eastern region of this country, it is evident that histoplasmosis is not necessarily a fatal disease, as had previously been considered.

A survey of student nurses in ten cities throughout this country has demonstrated a close parallel of sensitivity to histoplasmin with pulmonary calcification. In those cities in which pulmonary calcification is seen frequently the number of reactors to histoplasmin is high, and in those cities in which pulmonary calcification appears relatively infrequently the number of reactors is low. There is seen no significant parallel with the reaction to tuberculin. Since many of the student nurses lived for appreciable periods of time in cities other than those in which they train an attempt was made to map those places in which they had spent the major portion of their lives (Palmer [5]). Aside from significant interstate differences in sensitivity to histoplasmin, a definite intrastate variation was shown.

Recent data accumulated from Kansas City, Mo., by Furcolow [6] and his associates suggest that there are only slight differences in sensitivity to histoplasmin by sex and race. The lack of a higher incidence of sensitivity to histoplasmin in the Negro population is noteworthy in view of the known higher incidence of tuberculosis and positive reactions to tuberculin in this group.

ROENTGENOGRAPHIC OBSERVATIONS

To prove the existence of another disease which simulates tuberculosis roentgenologically, it would be necessary to obtain bacteriologic proof in instances of active pulmonary disease and then to follow these cases to an end stage of progressive disease or of healing with or without calcific deposition. A limited number of cases of this type have been studied in Kansas City, Mo., in which the roentgenogram of the chest demonstrated a parenchymal lesion with or without visible enlargement of the mediastinal lymph nodes; in these instances the reaction to tuberculin was negative and that to histoplasmin positive. Mycobacterium tuberculosis was not recovered. Further investigations are being conducted and will be reported on in the future.

With the present lack of bacteriologic proof it is possible to accept tentatively cutaneous testing as a method of directing one's thoughts and efforts toward the solution of this problem. In this respect there has been 1 instance of active disseminated pulmonary disease in a child, discovered in a school survey in February 1945. The skin tests, positive to histoplasmin and negative to tuberculin then, have remained so to the present. Definite evidence of beginning calcific deposition in these lesions was noted in January 1946.

Additional case material has been collected, in which the disease has not as yet progressed to the stage of calcification; in these there has been a small pulmonary lesion frequently associated with demonstrable enlargement of the lymph nodes. Under ordinary circumstances the lesion would be considered reinfection in minimal tuberculosis or a primary complex.

In 3 instances minimal lesions similar to those seen in pulmonary tuberculosis have appeared in persons who were previously negative to tuberculin and histoplasmin, and in whom roentgenograms of the chest had been negative. Within three months after negative cutaneous reactions and roentgenograms, the reaction to histoplasmin became positive and the lesion appeared. Recent follow-up films have indicated a persistence of the lesions for several months, suggesting a tendency to chronicity.

The impetus to the study of these instances of active disease resulted from the discovery of the correlation of tuberculin-negative pulmonary calcification with positive skin tests to histoplasmin. A distinction by roentgenography between tuberculin-positive, histoplasmin-negative calcification and tuberculin-negative, histoplasmin-positive calcification cannot be definitely made at this time. The calcified primary complex, massive hilar calcification and other types may fall in either group. However, disseminated bilateral calcification is more frequently associated with a positive reaction to histoplasmin than with one to tuberculin. High [7] has studied more than 100 instances of this type, including miliary calcinosis, of which approximately 90 per cent were positive to histoplasmin. Among these instances of disseminated calcification, 12 occurred in six pairs of siblings.

SUMMARY

It is probable that a disease other than tuberculosis and coccidioidomycosis accounts for a considerable number of instances of pulmonary calcification in the United

Read before the Section on Radiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

1. Christie, A., and Peterson, J. C.: Pulmonary Calcification in Negative Reactors to Tuberculin, Am. J. Pub. Health **35**: 1131-1147 (Nov.) 1945.
2. Palmer, C. E.: Nontuberculous Pulmonary Calcification and Sensitivity to Histoplasmin, Pub. Health Rep. **60**: 513-530 (May 11) 1945.
3. Emmons, C. W.; Olson, B. J., and Eldridge, W. W.: Studies of the Role of Fungi in Pulmonary Disease: I. Cross Reactions of Histoplasmin, Pub. Health Rep. **60**: 1383-1394 (Nov. 23) 1945.
4. Smith, C. E.: Coccidioidomycosis, M. Clin. North America **27**: 790-807 (May) 1943.
5. Palmer, C. E.: Geographic Differences in Sensitivity to Histoplasmin Among Student Nurses, Pub. Health Rep. **61**: 475-487 (April 5) 1946.
6. Furcolow, M. L.; High, R. H., and Allen, M. F.: Some Epidemiological Aspects of Sensitivity to Histoplasmin and Tuberculin, Pub. Health Rep. **61**: 1132-1144 (Aug. 2) 1946.
7. High, R. H.; Zwerling, H. B., and Furcolow, M. L.: Disseminated Pulmonary Calcification: A Report of One Hundred and Thirteen Cases, Pub. Health Rep. **62**: 20-29 (Jan. 3) 1947.

States. This disease or group of diseases apparently causes sensitivity to histoplasmin. By means of testing with histoplasmin, instances of active pulmonary disease have been discovered in school children in Kansas City, Mo., and in student nurses throughout the country which simulate pulmonary tuberculosis by roentgen examination.

ABSTRACT OF DISCUSSION

Dr. Charles E. Smith, San Francisco: While their approaches and the groups studied have been decidedly different, the results of Christie and Peterson of Vanderbilt and of Palmer and Zwerling of the Tuberculosis Control Division of the U. S. Public Health Service have checked closely. As Dr. Zwerling indicated today, neither group has committed itself to the etiology of the sensitivity to histoplasmin which so convincingly parallels pulmonary calcifications. This conservatism is appropriate, particularly in view of the questions which Emmons has raised regarding possible cross reactions. However, to one safely out of the area, it would appear that the noose is tightening around Histoplasma capsulatum. We are sure that such infections are not acquired in nature in California or other western states. Palmer's reported sensitivity to histoplasmin in California is recognized by him as the result of cross reactions in persons with coccidioidal infections. I am not qualified to discuss the roentgenologic aspects of these pulmonary lesions. A general pattern appears on the way so that statistically one could differentiate tuberculous infection. However, judging from our own experience with coccidioidal infections, exceptions appear with disconcerting frequency. One hopes that in the flush of histoplasmin enthusiasm we may exhibit Dr. Zwerling's caution in our conclusions with respect to our individual patients. Although a patient has histoplasmin (or coccidioidin) sensitivity, a pulmonary lesion may be tuberculous. Tuberculin testing and sputum and gastric cultures, smears and animal inoculations are as important as ever. An additional precaution should be mentioned. The different biologicals should have their individual tuberculin luers unless the syringes are soaked in dichromate cleaning solution after each use. Otherwise, the active principles will be adsorbed and diagnostic chaos result.

Dr. Ray O. Carter, Los Angeles: Drs. Zwerling and Palmer have made a definite contribution in correlating roentgenographically evident, apparently early pulmonary lesions with a negative tuberculin test and a histoplasmin reaction which turned positive and in observing the onset of calcification in such lesions. As they stated, the exact specificity of the reaction to histoplasmin is secondary to the fact that calcifications due neither to tuberculosis nor coccidioidomycosis are present in numerous instances in the lungs. Complete proof may require identification of the organism. However, it appears safe to assume that histoplasmosis or an allied group of diseases is the cause of these calcifications. Pulmonary calcifications due to coccidioidomycosis have been authenticated by Smith and Aronsen and by Butt. No assumption appears to have been made by Palmer or Zwerling or Christie that the residual calcifications of histoplasmosis which are so prevalent are of clinical significance nor has this been shown to be true in coccidioidomycosis. Since they are so considered in tuberculosis, it is important to recognize that many of the calcifications found in roentgenograms of the chest are neither tuberculous in origin or of known present clinical importance. This knowledge would have been extremely useful during the period of assembly of the nation's military forces. However, the roentgenologic military surveys themselves gave an impetus which has furthered the more recent work of Palmer, Christie, Zwerling and others. Pathologic calcifications appear to be largely a sequel to avascularization and focal necrosis. As such they are quite nonspecific. Their significance depends largely on incidentally available distinctive features of their location and appearance and associated immunologic evidence. With fungus infections geographic considerations become important. The policy of most observers in the reporting of pulmonary calcifications appears to be conservative. This is natural, since these may be simulated by vascular shadows. This conservatism has also been furthered by the presumed tuberculous origin of the calcification, which makes one reluctant to identify smaller dubious ones. Under these influences the policy may well have become overconservative. Most physicians have seen pulmonary calcifications proved on incidentally obtained oblique roentgenograms which would have been accepted as vascular shadows on a simple survey film. It is of interest that histoplasmosis, like coccidioidomycosis and other diseases, was first recognized and typed by its severe manifestations and was later revealed to have a large, previously unrecognized substratum of benign involvement and an even broader one of subclinical manifestations. This appears to be true also of tuberculosis. Earlier studies of pulmonary calcifications are now of renewed interest. Conceptions of calcium metastasis of anergic or healed miliary tuberculosis now are less readily accepted, but these also may occur.

Dr. W. Edward Chamberlain, Philadelphia: This is an extraordinarily fine piece of work. In my capacity as Consultant, Division of Tuberculosis Control, United States Public Health Service, I have had an opportunity to follow its development and witness the care with which it has been handled. That it has great practical importance is obvious, for it has answered some questions that have bothered radiologists for thirty years. The authors have reported their observations with commendable conservatism. Perhaps this is necessary in cases in which evidence is circumstantial. But circumstantial evidence can be exceedingly convincing, and in this particular case it seems to me that the conclusions which the authors have suggested are thoroughly justified from every point of view.

Dr. Henry B. Zwerling, Berkeley, Calif.: One statement that did not belong in the paper, in my opinion, is that we have collected a few instances of splenic calcification in tuberculin-negative, histoplasmin-positive children. The only difficulty is that we cannot say just what that observation means because so far all these cases of splenic calcification involve pulmonary calcification. We expect pulmonary calcification in Kansas City, Mo., to be histoplasmin-positive; whether the splenic calcification is evidence of disseminated histoplasmosis cannot be stated.

Clinical Notes, Suggestions and New Instruments

SUBCONJUNCTIVAL HEMORRHAGE DURING THE ADMINISTRATION OF RUTIN

A Report of Two Cases

JOSEPH B. WOLFFE, M.D.
and
A. W. DANISH, M.D.
Philadelphia

Rutin, a flavone glucoside first isolated in 1842, is found in many plants. Dr. James F. Couch of the Eastern Regional Research Laboratory, United States Department of Agriculture, noting the structural similarity of rutin to hesperidin, advanced the possibility of its use in the treatment of some forms of bleeding. As a result of a series of chemical investigations, he found that the unripe buckwheat leaf gave the highest yield of rutin, and this is the plant from which our present supply is extracted.

Rutin was given in initial doses of 60 mg. daily to a series of 66 patients in the course of a clinical investigation. In the four months during which this study has been followed, in 2 of the patients who were taking the rutin there developed subconjunctival hemorrhages. During the same period, only 1 patient of a much larger group being treated similarly (with the exception that they were not receiving rutin) and for similar conditions has shown this type of hemorrhage.

From the Wolffe Clinic and the Department of Medicine, Temple University School of Medicine.

REPORT OF CASES

CASE 1.—R. G., a dentist aged 46, gave a history of hypertension for fifteen years and of effort angina for one year. When first seen in March 1946 his blood pressure was 210 systolic and 125 diastolic. There was an area suggestive of old healed small hemorrhages in the right retina. The rest of the physical examination and laboratory studies were as expected in a case of long-standing hypertension (on a renal and atheromatous basis) with angina. This patient was started on rutin, 20 mg. three times a day, on March 12, 1946, in addition to other therapy. On April 9, 1946, there developed in his right eye a subconjunctival hemorrhage, which increased in size the following day (see the accompanying illustration). Further history revealed that he had had a similar, but less extensive, hemorrhage several years before. A capillary fragility test performed on the day that the hemorrhage developed was well within normal limits (petechial index—Gothlin technic). The blood pressure was 185 systolic and 110 diastolic. In spite of the hemorrhage the dosage of rutin was increased to 50 mg. three times a day. On May 5, 1946 we received a communication stating that a similar hemorrhage had occurred the day before involving the same area. We then increased the rutin to 100 mg. three times a day, and to date there have been no recurrences.

Subconjunctival hemorrhage (case 1) appearing four weeks after start of rutin therapy.

CASE 2.—J. W., a physician aged 50, gave a history of detached left retina ten years previously and venous and arterial thrombosis in the right eye three years before. The blood pressure was 145 systolic and 90 diastolic. In February 1946, after taking 60 mg. of rutin in twenty-four hours, a small subconjunctival hemorrhage appeared in the left eye. Nothing of this sort had ever before been experienced by this person. The patient's fragility test was normal. The patient discontinued rutin of his own accord. No hemorrhage has occurred since then.

COMMENT

The fact that hemorrhages occurred in patients whose capillary fragility was normal throws doubt on the relationship between the Gothlin index and the tendency to hemorrhage—at least in this particular type of bleeding. It would indicate that the Gothlin index is no criterion on which to predict this kind of hemorrhage.

In the first case, hemorrhage occurred in spite of the ingestion of 1,700 mg. of rutin within four weeks and recurred four weeks later, after an additional 4,200 mg. of the drug had been taken. When the dose was increased to 300 mg. a day no further hemorrhage occurred.

It is possible that early in the administration of rutin there is a period when there is an increased tendency to hemorrhage—a so-called vulnerable period. There is some experimental evidence for this phenomenon, both in our unpublished work on rutin in animals, and in Majovski's [1] work on hesperidin. This important phase needs further investigation.

Amounts of rutin as high as 60 to 150 mg. daily did not protect the patient in case 1 from subconjunctival hemorrhages. However, when the same patient was given still larger doses of rutin, he did not have further recurrences.

SUMMARY

Two cases of subconjunctival hemorrhage are reported; the first after approximately four and eight weeks of rutin therapy, the second after one day's administration of this drug.

1829 Pine Street.

1. Majovski, G. J., and others: Vascular Fragility and Permeability as Influenced by Various Agents, J. Pharmacol. & Exper. Therap. 80: 1-7, 1944.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

AN APPRECIATION

The Council on Physical Medicine desires to take this opportunity to express its feelings of gratitude and appreciation for the services of the following consultants, whose assistance in carrying out the work of the Council has been given so freely during the past year: Drs. Charles A. Bahn, Alvan Barach, Edward Bigg, Raymond Carhart, Milton B. Cohen, Clarence J. Gamble, H. G. Hansson, Le Grande Hardy, John S. Hibben, Alexander Hollaender, Alfred Lewy, A. M. Olsen, Stafford L. Osborne, Howard F. Polley, Scott N. Reger, Henry Schwerma, Khalil G. Wakim, Ralph Waters, Harold Westlake, Lieut. (jg) Eva Thompson and Mr. Luther Ramer.

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Electrocardiographs.—Drs. A. R. Barnes, George Fahr, Harold E. B. Pardee, William D. Stroud, Carl J. Wiggers and Frank N. Wilson.

Electroencephalographs.—Drs. Percival Bailey, Edward J. Baldes, Stanley Cobb, Hallowell Davis and Frederic A. Gibbs.

Occupational Therapy.—Drs. Raymond B. Allen, Robert W. Johnson Jr., Winfred Overholser, Howard A. Rusk, William D. Stroud and Francis B. Trudeau.

Ophthalmic Devices.—Drs. Thomas D. Allen, S. Judd Beach, Conrad Berens, Frederick C. Cordes, Alfred Cowan, Walter B. Lancaster, William H. Luedde, Lawrence T. Post, Avery D. Prangen and Kenneth C. Swan.

Respirators.—Drs. Edward L. Compere, Charles F. McKhann and James L. Wilson.

Roentgen Rays and Radium.—Drs. William E. Chamberlain, Arthur C. Christie, Edwin C. Ernst, Gioacchino Failla, Fred M. Hodges, Robert R. Newell, Eugene P. Pendergrass, Ursus V. Portmann, Lauriston S. Taylor and J. L. Weatherwax.

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SATURDAY, JUNE 21, 1947

THE CENTENNIAL SESSION

The great convention celebrating the one hundredth anniversary of the establishment of the American Medical Association held in Atlantic City last week, for which the Board of Trustees, the Centennial Committee and the headquarters staff of the Association had planned so long and so carefully, surpassed every hope and expectation. Those who were fortunate in attending this great session will long remember it as an epoch marking occasion.

Attendance

The registered attendance—15,667—represents by far the largest assemblage of physicians ever held anywhere in the world. When it is realized that the number includes about one in four of the Fellowship of the Association, who were the only physicians eligible to register except for foreign guests, the number of those attending is all the more remarkable. As a result of this tremendous registration, every one of the scientific sections and every exhibit had the continuous participation of a capacity audience. Indeed from some of the meetings and special functions it became necessary to turn away hundreds or even thousands of visitors.

Dinner for Associated Organizations

In The Journal of June 28 will appear the papers of Mr. Henning W. Prentis Jr. and Mr. Basil O'Connor, which were read to the audience at the dinner honoring the industries, the organizations and the professions associated with medicine. These addresses speak for themselves. Their significance was recognized. These pronouncements by great leaders in American industry and philanthropy will unquestionably be effective in indicating to the public the importance of the American way of life for the advancement of medical science and medical practice. In his extemporary address General Omar Bradley paid tribute to the contributions of the medical profession toward the winning of the war and in the great task of salvaging the wounded and the disabled in our military forces.

Religious Services

On Sunday morning, June 8, the National Broadcasting chain spread to the nation addresses by three great religious leaders, the Rev. Ralph Cooper Hutchison, President of Lafayette College, Easton, Pa.; Rabbi Joshua Loth Liebman of Boston, and Monsignor Fulton J. Sheen of Washington, D. C. These sermons were classical. After the broadcast the speakers delivered more extended addresses in the great convention hall. Here they spoke so eloquently, so beautifully and with such sincerity of the partnership that prevails between the minister of faith and the minister of healing that many of those who heard the addresses considered the occasion the outstanding event of the entire session.

The Centennial Stamp

On Monday morning a hoard of philatelists descended on Atlantic City to be present at the opening day's sale of the centennial stamp issued through cooperation of Postmaster General Robert E. Hannegan and the Post Office Department. The Journal in a recent editorial told the story of this stamp. Thousands of first day covers were made available, and this reminder of the services that the doctor gives was spread into every state. The Post Office Department issued 125,000,000 stamps. In the official presentation of the stamp by Assistant Postmaster General Joseph Lawler at the dinner of the House of Delegates on Monday night, Mr. Lawler stated that postmasters throughout the United States had ordered 80,000,000 of the stamps; 2,000,000 had been ordered for distribution in Atlantic City. This, he said, was apparently one of the most popular issues of stamps for special occasions developed by his department.

Exhibits

Unquestionably first in recognition by Fellows of the Association and by guests from all the countries of the world was the Scientific Exhibit. The mere listing of these exhibits or a reading of the descriptions of the exhibits which received the awards cannot convey the completeness, the elaborate character or the high scientific quality of these demonstrations of medical progress. Again and again those in attendance expressed the wish that these might be available throughout the year for graduate study in all parts of the country. Some of the foreign guests were amazed to learn that most of the exhibits would be shown merely for the one week at the annual session and would then not appear again. From the opening to the closing each day throngs of interested observers occupied every inch of available space at the exhibits and in the aisles.

The industries associated with medicine which provided the technical exhibits were also unanimous in their tribute to the arrangements and to the quality of the session. Many had failed to anticipate the immense audiences and began to exhaust their supplies by the third or fourth day, so that they were compelled to communicate with their home offices for additional samples, registration cards, pamphlets and even pencils. Many of the exhibitors had utilized the occasion to present historical demonstrations of progress in medicine's attack on disease. Possibly a compilation of the

illustrations and the histories thus prepared may be gathered for a permanent pictorial history of medical progress.

General Medical Meetings

The great ballroom of the Atlantic City convention hall provides seating for 5,000 to 6,000 persons. The number in attendance on the general medical meetings was sufficient at all times to require that capacity. Such speakers as Florey, Seddon and Pickering no doubt did much to attract the audience, but the panel discussions and the papers reporting recent progress in medicine in many fields repaid many times those who attended.

At one of the sessions on Tuesday those present had opportunity to hear a message delivered in person by the Secretary of War, Robert P. Patterson, and the Assistant Secretary of the Navy for Air, John Nicholas Brown, who then proceeded to speak at a luncheon of the House of Delegates. Here the Secretary of War told of the plans for the advancement of the status of physicians in the armed forces, and the Navy representative discussed particularly the medical problems associated with aviation in war.

Opening Session

Many hundreds were turned away from the opening general session held on Tuesday night, June 10. The capacity audience assembled early to hear the magnificent concert of the Philadelphia Festival Orchestra under the direction of Alexander Hilsberg. Each of the selections was greeted by an ovation. The perfection of the performance is a tribute to the greatness and fame of this musical assemblage. At the conclusion of the concert the orchestra presented a distinct novelty —a march dedicated to the victory at Iwo Jima, composed by the President of the Association, Dr. Edward L. Bortz. Then came the program, which included not only the address of the President on "The Objectives of the American Medical Association," published in THE JOURNAL last week, but also presentation of the distinguished invited guests—more than 60 in number—who had come from all parts of the world, representing scientific progress in various medical specialties, the medical organizations of their countries or their governments. The great hall was decorated with the flags of all nations. The announcement by the chairman of the Board of Trustees, Dr. R. L. Sensenich, that honorary fellowship was awarded to each of these distinguished physicians was greeted by a rising of the entire audience in tribute to our guests.

The Foreign Visitors

As has been mentioned, more than 60 distinguished foreign physicians attended the meeting as invited guests who participated in programs of the general medical meetings and the scientific sections, and also those delegated by the governments of various nations and by the medical associations. Several of the physicians who attended were ambassadors of their governments to the United States. Others held a variety of governmental appointments. During the sessions of the House of Delegates the proceedings were interrupted from time to time for the introduction of these guests. The delegates from the British Medical Association, which included the chairman of their council, their secretary, their editor and the chairman of their Committee on International Relations, presented to the House of Delegates a gavel and a block made from the wood of a tree that had grown in Tavistock Square, now site of the home of the British Medical Association, but formerly occupied by the home of Charles Dickens. It was under this tree that he wrote many of his great novels. The delegate from China presented to the House a scroll painted on silk with a tribute to the advancement of medical science as a result of the efforts of American medicine. Many of the representatives of foreign governments presented brochures and scrolls especially prepared for the occasion. From Denmark came a medical book published in the earliest days of printing; from Switzerland a medal especially designed to commemorate the occasion, and indeed from every representative a special resolution or memorial congratulating the Association on 100 years of medical progress. On June 12 the Medical Services Foundation tendered a luncheon to the invited guests from abroad, at which Dr. Harry Guy Dain of the British Medical Association and Dr. Sven Forssman, representing Sweden, spoke of the importance of international relations in the advancement of medical care.

During the session, the House of Delegates approved participation of the American Medical Association in the World Medical Association and also cooperation with the Pan-American Medical Federation. Thus the Centennial Session served to give great impetus toward international relationships in medical science.

Again at the President's reception on Thursday night our distinguished foreign guests stood in three great reception lines, where visitors to the convention had opportunity to shake them by the hand, to meet them personally and to exchange a few words of personal greeting.

Scientific Sections

The program of the scientific sections was printed in the Convention Number of THE JOURNAL, May 3, and no doubt did much to attract the tremendous number of physicians who attended the meetings of the sections. Each of the scientific programs included at least one representative of a foreign country, several included two or three, and in addition an address delivered by a great leader of American medicine on one hundred years of progress in the specialty concerned. There were several symposiums and joint meetings of sections. More than 2,000 physicians attended the panel discussion on "Recent Advances in Treatment," which was a joint meeting of the Sections on Internal Medicine and Experimental Medicine and Therapeutics, this being held on the concluding day of the session. The great

audience sat for several hours and submitted hundreds of questions, which were answered by the eight leaders in the field of medicine who participated in the panel.

President's Reception

Distinctive for the President's reception at this convention was the participation of two "name" orchestras, those of Tommy Tucker and Eddie Lane, who provided music alternately and continuously to a vast and colorful assemblage of physicians and their ladies. The three reception lines which greeted the visitors included a representative of the local committee and respectively the retiring President, the President and the President-Elect of the Association and of the Woman's Auxiliary. Included also, as has already been mentioned, were the invited guests of distinction and their wives. Testimony to the pleasure of the Fellows of the Association in meeting personally these representatives of American and foreign medicine was the length of the queues which formed and which for hours passed from one line to the next.

Fraternity, Alumni and Honorary Dinners

Throughout the session, but particularly on Wednesday and Thursday nights, dinners were held by alumni associations of our great medical colleges, by the great medical fraternities and by various honorary societies and other organizations, which attracted great numbers of convention visitors. One dinner of note was that given by the Passano Foundation to the officers and trustees of the Association, at which the Passano Award was given to Selman Waksman for his discovery of streptomycin and at which tribute was tendered to him by Sir Howard W. Florey. The dinner of the alumni association of Jefferson Medical College attracted between 600 and 700 guests. Alpha Omega Alpha at a dinner attended by hundreds conferred honorary membership on the invited guests. Many of the great industrial groups associated with the medical profession provided cocktail parties, receptions and dinners during the week. The W. B. Saunders Company tendered a dinner to the Board of Trustees and officers of the Association, at which there was an official presentation of the History of the Association, which they have published. Mead Johnson & Company provided a great dinner to celebrate awards for the exhibits of art, including painting, etching and sculpture.

Woman's Auxiliary

The Woman's Auxiliary of the American Medical Association now has more than 30,000 members. It has a potentiality for service to the American Medical Association in the field of public relations which will no doubt be utilized to the utmost in future plans. During the Centennial Celebration the organization held frequent meetings, luncheons and dinners distinguished by fine programs and maximum attendance. The headquarters of the Woman's Auxiliary is now permanently established in the headquarters office of the Association, and the Board of Trustees has planned for regular conferences with the directing bodies of the Auxiliary for complete coordination of effort.

Publicity—Press and Radio

Throughout the annual session there were broadcasts over the national chains and over local stations which kept the nation constantly aware of the great centennial meeting. At the Monday night dinner of the House of Delegates the Mutual Broadcasting System duplicated one of the broacasts in its series on "Stephen Graham: Family Doctor." The American Broadcasting Company provided a nationwide broadcast descriptive of the exhibits in which the President of the Association and the editor described the technical and scientific expositions. The chairman of the Board of Trustees, the President of the Association, Dr. Bortz following his inauguration and many others spoke at various times over nationwide networks. Some of the addresses will be published in forthcoming issues of *Hygeia*.

The press representatives were tendered a luncheon on the Saturday preceding the session, at which time they were provided with abstracts of the most important papers and with information concerning the special functions of the week. All were invited to attend the dinner to the associated industries and professions. Two press rooms were in continuous operation—one in the convention hall and the other in the Traymore Hotel, which housed the meetings of the House of Delegates. Daily articles were spread throughout the nation by representatives of the Associated Press, United Press, International News and by syndicated writers, as well as by individual representatives of many great newspapers and news magazines. Many periodicals of national circulation have celebrated the centennial by pictures related to the medical profession on their covers and by feature articles.

House of Delegates

Unfortunate perhaps were members of the House of Delegates, who were continuously in session from June 9 through June 12 except for one morning, at which time, incidentally, at least half of the membership of the House were occupied in reference committees. Such flavor of the session as they were able to gather was dependent on the visits to the House of Delegates by the distinguished invited guests and by the functions which took place at night. The problems most prominently confronting the House of Delegates concerned the future of the general practitioner, the reorganization of staffs of hospitals to provide for a service in general practice, the utilization of the total medical profession for any future military emergency, plans for the promotion of voluntary insurance against the costs of sickness and hospitalization, the provision of a supplemental meeting of the House of Delegates during the winter months and in association therewith a two day single

general session designed particularly for the general practitioner, this to be arranged under the joint auspices of the Board of Trustees and the Council on Scientific Assembly. Using the technic of the propagandists Senator James E. Murray tried to divert the publicity interest from the advancement of medical science to his campaign for socialization of medicine. With the ineptness characteristic of the actions of this group the mass of publicity material sent to Atlantic City came directly into the hands of officers of the Association. The House of Delegates replied to Senator Murray unanimously, expressing again its opposition to his proposals. So comprehensive is the work of the American Medical Association that the reference committees charged with the report of the Board of Trustees and the Secretary, with the recommendations of the officers and with medical legislation and public relations took the entire available time of the members of the reference committees charged with examination of reports and action on resolutions in this field. Special reports on rural health, on convalescent care and that of the Committee on Emergency Medical Service were long and detailed and occupied many hours of time of members of the House. The executive session was concerned particularly with the final report of an interim committee on the public relations of the American Medical Association.

The proceedings of the House of Delegates will be published in THE JOURNAL during the next few weeks. Readers of THE JOURNAL are advised to follow the text of these proceedings as closely as possible, since the actions taken by the House of Delegates are vital to the further progress of the medical profession. The proceedings include, moreover, the beautiful messages presented to the House of Delegates by the President of the United States, by our invited guests and by officials of our own government.

The History of the Association

Through extraordinary efforts by the publisher, the History of the Association, which includes a general account of its progress, the lives of the presidents with a photograph and a signature for each, and a record of the growth of each of the councils, bureaus, publications and various agencies of the Association, was made available on Monday, June 9. The wide distribution of this work to libraries and to the public generally throughout the world will serve as a permanent memorial of one hundred years of progress of the American Medical Association. During these one hundred years the Association has reached in membership and in fellowship, in the number and quality of its publications, in its councils, bureaus and other departments, in its service to the medical profession, a recognized position of leadership in all the world.

As was said in the opening paragraph of this editorial, the celebration of the centennial was epochal. Fifty-years ago Dr. Nicholas Senn predicted that the one hundredth year would see a membership of perhaps 100,000 and would witness inventions and discoveries beyond the conception of his day. As was said by Dr. Edward L. Bortz, in his president's address, "His vision has proved correct." The centennial celebration brought the message of progress in addresses, in exhibits, in information to the public and in tribute rendered in music, in art, in religion and in science.

FLUOROSCOPIC DIAGNOSIS OF GASTRIC CANCER

In the early stages cancer of the stomach produces few or only slight symptoms. Many, perhaps most victims of gastric cancer do not seek medical advice before the cancer has advanced beyond surgical cure. For various reasons delay in diagnosis often occurs even if the patient is under medical care; in general the prognosis remains distressingly dismal. With the means at hand the only way to change the outlook is removal of the cancer much earlier than is now usual. This means of course that the cancer must be diagnosed in the early stages, even before it causes any symptoms.

The best if not the only practical method of excluding asymptomatic gastric cancer at present is fluoroscopy of the stomach, followed if indicated by x-ray, gastroscopic and other studies, as introduced by St. John, Swenson and Harvey.[1] By fluoroscopy they found 2 cases of early gastric carcinoma and 1 of lymphosarcoma in 2,413 persons in the cancer age, all apparently well and without any obvious gastrointestinal disturbances. In his important article on gastric cancer problems Barrett[2] points out that evaluation of this method will require examination of larger groups than 500 healthy people.

In their review of the diagnosis and the results of surgical excision of gastric cancer, Abrahamson and Hinton[3] urge that routine fluoroscopic and x-ray examinations of persons in the cancer age should be carried out more and more as the only means now available for the presymptomatic diagnosis of cancer of the stomach. Such studies should be included in periodic examinations in military and veteran services, in industries, of applicants for health and life insurance, and as a matter of routine on the hospital entrance of all patients above 40 years of age. They also urge that facilities be made available for fluoroscopy of the stomach of private patients over 40 in all economic groups. This suggestion is of course especially applicable to diagnostic and preventive cancer clinics.

1. St. John, F. B.; Swenson, P. C., and Harvey, H. D.: An Experiment in the Early Diagnosis of Gastric Carcinoma, Ann. Surg. **119**: 225 (Feb.) 1944.

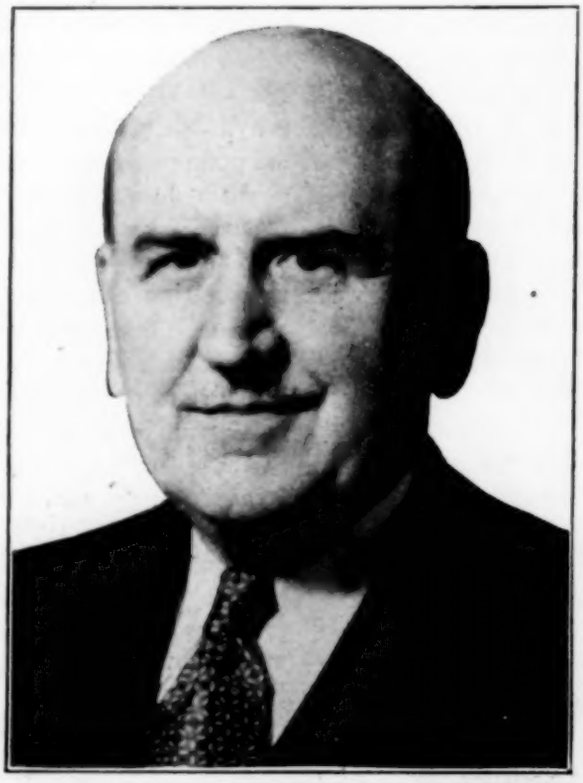
2. Barrett, Morris K.: Avenues of Approach to the Gastric Cancer Problem, J. Nat. Inst. Cancer **7**: 159 (Dec.) 1946.

3. Abrahamson, R. H., and Hinton, J. William: Gastric Carcinoma: A Comparative Review of the Origin, Diagnosis and End Results in 583 Patients, Surg., Gynec. & Obst. **84**: 481 (April) 1947.

Current Comment

THE PRESIDENT-ELECT, DR. ROSCOE LLOYD SENSENICH

In recognition of his long and outstanding service to the American Medical Association, Dr. Roscoe Lloyd Sensenich was elected by the House of Delegates to the position of President-Elect at the Centennial Celebration in Atlantic City. Dr. Sensenich has been Chairman of the Board of Trustees of the American Medical Association since 1945, has been a member of the Board of Trustees since 1937 and was a member of the House of Delegates continuously from 1931 to 1937. On frequent occasions he has represented the Association in public hearings before committees of Congress.



ROSCOE L. SENSENICH, M.D.
PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

Dr. Sensenich graduated from Rush Medical College in 1905, served internships at the Presbyterian and St. Joseph hospitals in Chicago under Dr. D. W. Graham and Dr. Nicholas Senn, and then did graduate work at medical centers in the United States and abroad. A native of Indiana, he is chief of the Department of Internal Medicine at the Memorial Hospital, South Bend, in which city he has resided for many years. He is a member of the staff of St. Joseph Hospital, president of the board of St. Joseph Tuberculosis Hospital, director of the South Bend Medical Laboratories and was a member of the Advisory Committee on Services to Crippled Children of the Indiana State Department of Public Welfare. He is a specialist certified by the American Board of Internal Medicine, a fellow of the American College of Physicians and a member of the Central Society for Clinical Research. He is a past president of St. Joseph County Medical Society, the Indiana State Medical Association and the Indiana Tuberculosis Association. During World War I Dr. Sensenich was a major in the Medical Corps, serving as chief of the medical service of an army general hospital; during World War II he was a member of the National Committee on Allocation of Medical Personnel to the Armed Forces, of the committee which cooperated with the National Advisory Council on Physical Fitness and of the Advisory Committee of Selective Service. During his incumbency in official positions in the Association Dr. Sensenich has devoted himself enthusiastically to its work. He has traveled widely to speak to state and county medical societies and has participated in conferences with other medical and related organizations and with leaders in many spheres of activity. His report with Dr. Ernest E. Irons on the relation of the roentgenologist, pathologist and anesthesiologist to the work of the hospital was a fundamental document in this disturbing situation. His election to the position of President-Elect is recognition of the efficiency that he has given to every activity in which he has participated.

TONSIL STUMPS

Tonsillectomy is the most frequent surgical procedure in the United States. Since it is made in many instances on an ambulatory basis and often by physicians without specialized surgical training, many physicians apparently consider it an operation requiring a minor degree of surgical skill. The results of analysis of the rate of recurrences of tonsillar growth after tonsillectomy indicate that tonsillectomy should command all the respect of a major operation.[1] The incomplete removal of tonsillar tissue and the subsequent formation of infected tonsil stumps are rather common. The Spuths [2] recently reported the presence of tonsil stumps in 80 per cent of 285 tonsillectomized patients. Instead of being relieved through tonsillectomy of their foci of infection, many patients continue to absorb bacteria and toxins from the tonsillar tissue left in the throat and are often systemically much worse off than prior to their operation. While there is drainage of infectious and toxic material from the external surface of the tonsils before tonsillectomy so that only a part of such harmful matter is absorbed into the organism, this route of escape becomes obliterated after tonsillectomy, for the infectious and toxic material contained in the usual tonsil stumps are covered by scar tissue. It is resorbed in its entirety through the lymphatics and veins and may cause, in addition to fatigue, heart palpitations, vague muscular pains, secondary infections and allergic complications in remote organs (polyarthritis, nephritis, endocarditis, asthma, chronic phlebitis). Sometimes the diagnosis of tonsil stumps cannot be made by an inspection of the tonsillar region because the retained tonsil tissue may be buried beneath a thick layer of scar tissue. However, as inflamed tissues, the presence of which is usual with tonsil stumps, are sensitive to

1. Cooke, R. A.: Allergy in Theory and Practice, Philadelphia, W. B. Saunders Company, 1947, p. 152.
2. Sputh, C. B., Jr., and Sputh, C. B., Sr.: The Tonsil Stump and Its Removal, J. Indiana M. A. **39**: 401 (Aug.) 1946.

pressure, tonsil stumps can be detected with reliability by exerting pressure either directly on the tonsillar scar tissue or externally from the angle of the lower jaw in the direction of the tonsillar fossa. Tonsils when functioning normally are protective organs and should not be removed. Definitely infected tonsils and especially tonsil stumps should be radically removed under general anesthesia and with adequate surgical technic and skill.

DISTINGUISHED SERVICE MEDAL

At the Centennial Session of the American Medical Association in Atlantic City, June 9-13, Dr. Henry Asbury Christian, Hersey professor of theory and practice of physic, emeritus, at Harvard Medical School, Boston, was nominated to receive the citation and the Distinguished Service Medal of the American Medical Association. Dr. Christian was born in Lynchburg, Va., in 1876. After graduating from Johns Hopkins University School of Medicine, Baltimore, in 1900 he was appointed assistant pathologist at the Boston City Hospital and from 1903 to 1907 taught pathology at Harvard Medical School. In 1908 he became Hersey professor of the theory and practice of physic, serving actively until 1939. Dr. Christian was dean of Harvard Medical School from 1908 to 1912. In 1942 he was recalled at Harvard and in 1943 served as clinical professor of medicine at Tufts College Medical School. From 1910 to 1939 he was physician in chief at the Peter Brent Brigham Hospital and from 1907 to 1912 was also physician in chief at the Carney Hospital. He was on the staff of Beth Israel Hospital in Boston, was a major in the medical reserve corps of the U. S. Army from 1918 to 1921, and for one year was resident chairman of the division of medical sciences of the National Research Council. Dr. Christian served the American Medical Association as secretary of the Section on Pathology and Physiology from 1903 to 1905, as chairman of the section from 1905 to 1907 and as a delegate from that section in 1909. In 1916-1917 he was secretary of the Section on Practice of Medicine and a delegate from this section in 1926 and 1927. He was president of the American Society for Clinical Investigation in 1919, of the Interstate Postgraduate Medical Association of North America in 1931 and of the Association of American Physicians in 1935. He is a member of many learned societies both here and abroad and has received honorary degrees from various universities.

HENRY ASBURY CHRISTIAN, M.D.
AWARDED DISTINGUISHED SERVICE MEDAL

CHEMICAL BURNS OF THE HUMAN CORNEA

On the basis of 500 cases treated for chemical eye burns, McLaughlin [1] has observed that certain chemicals have a delaying action. Such chemical compounds frequently cause a loss of vision due to opacification of the cornea and adhesions of the conjunctiva following a symptom free period of several hours after accidental contact. The most notable observation is change in corneal structure produced by all alkaline and a few neutral organic compounds, but not by acidic compounds or those neutral chemicals which experience shows to be relatively harmless. The change in the corneal structure, as observed with the high power of the biomicroscope, reveals the presence of areas of opacity in the superficial layers of the corneal epithelium. The opaque areas are seen to be stained a faint green by fluorescein when observed by direct illumination. Studies by Carpenter and Smyth [2] suggest that the foreign compound initially is physically adsorbed on protein structures of the corneal epithelium. Following this a portion of the adsorbed chemical denatures cellular protein, resulting in necrosis. The remainder is liberated slowly with its chemical nature unchanged, to diffuse from the original site of adsorption into previously unaffected tissue. Instead of a delaying effect there is therefor progressive action which may spread to involve the entire depth of the epithelium down to Bowman's membrane, at which point irreparable damage to the tissue results. The greater number of the chemicals that behave in this way are alkaline. Attempts at neutralization of the acid substances failed in animal experiments [2] to give any amelioration of injury. The treatment that suggested itself in these cases was denudation or mechanical removal of the involved cells before a progressive action could be initiated. Immediate first aid, followed by long flushing with water and denuding where indicated, gave most gratifying results. Thus, of the 500 cases treated 456 (91.2 per cent) healed in forty-eight hours with no loss of vision; 37 (7.4 per cent) healed slowly but without loss of vision; 7 cases, or 1.5 per cent, healed with a residual loss of vision. McLaughlin emphasizes that this loss of vision was the result of inadequate preliminary care or such complicating factors as infected teeth or tonsils.

1. McLaughlin, R. S.: Chemical Burns of the Human Cornea, Am. J. Ophth. **29**: 1355 (Nov.) 1946.
2. Carpenter, C. P., and Smyth, H. F., Jr.: Chemical Burns of the Rabbit Cornea, Am. J. Ophth. **29**: 1363 (Nov.) 1946.

ORGANIZATION SECTION

PROCEEDINGS of the ATLANTIC CITY SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN ATLANTIC CITY, JUNE 9-13, 1947

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 9

The House of Delegates convened in the Rose Room of Hotel Traymore, Boardwalk at Illinois Avenue, and was called to order at 10:30 a. m. by the Speaker, Dr. R. W. Fouts.

Preliminary Report of the Reference Committee on Credentials

Dr. G. Henry Mundt, Chairman, stated that 143 delegates had registered up to the present time and that the registration was steadily increasing.

Roll Call

The Speaker announced that a quorum was present and requested the Secretary to call the roll, which was done.

Distinguished Service Award

Dr. R. L. Sensenich, Chairman of the Board of Trustees, presented a report of the Board as follows:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees.

In accordance with chapter VI, section 5, of the By-Laws, the Board has selected by ballot the following names for presentation to the House of Delegates in alphabetical order: Dr. Isaac Abt, Chicago; Dr. Alfred Blalock, Baltimore, and Dr. Henry A. Christian, Boston.

The Speaker appointed as tellers Dr. J. Wallace Hurff, New Jersey, Chairman; Dr. Mather Pfeiffenberger, Illinois; Dr. Jesse D. Hamer, Arizona; Dr. Guy W. Wells, Rhode Island, and Dr. Francis W. Savage, Minnesota.

The tellers spread the ballot and the Secretary announced that one hundred and fifty-four votes had been cast, of which Dr. Abt received fifty-three, Dr. Blalock thirty-one and Dr. Christian seventy. He added that one hundred and sixty-six delegates had answered the roll call.

The Speaker announced that since no one had received a majority of the votes cast, the House would proceed with a second ballot on which the name of the one receiving the least number of votes would be omitted.

The tellers spread the ballot, and the Secretary announced that one hundred and sixty-three votes had been cast, of which Dr. Abt received sixty-three and Dr. Christian one hundred.

The Speaker declared Dr. Henry A. Christian, Boston, who had received the majority of the votes cast, to be elected by the House of Delegates to receive the Distinguished Service Award of the American Medical Association.

Special Report of Board of Trustees

On request of the Speaker, the House of Delegates by unanimous consent granted permission to the Board of Trustees to present a special communication:

Communication from Dr. Olin West, Nashville, Tenn.: Dr. George F. Lull, Secretary, presented the following communication from Dr. Olin West, former Secretary and General Manager:

June 5, 1947

Dr. R. W. Fouts,
Speaker, House of Delegates,
American Medical Association,
Atlantic City, New Jersey.

Dear Doctor Fouts:

At this time when the American Medical Association is about to celebrate its one hundredth birthday my thoughts are all of the Association and of those who must establish its policies, those who are chosen to administer its affairs and the great body of physicians who compose its membership. The deepest and dearest desires of my heart are all for the continued and unbroken success of the Association in its efforts to serve and promote the great cause for which it has worked unceasingly for a century—the cause of medicine and its service to humanity.

It is one of the greatest disappointments of my life that I am denied the privilege of attending the great Centennial Celebration, of looking in on the meetings of the House of Delegates and of the Scientific Assembly, of viewing the exhibits and of greeting and shaking the friendly hands of many of those whom it has been my pleasure to see at annual sessions year after year.

I cannot refrain from asking you, as Speaker of the House of Delegates, to convey to the members of that body, the officers of the Association, the members of its Councils and Committees and its administrative personnel an expression of my high regard and of my gratitude for their many helpful kindnesses to me during the years when it was my privilege to be associated with them in efforts to carry on the great work of a great organization.

With unswerving adherence to the principle for which the Association has always stood and with steadfast devotion to the highest ideals and the worthiest professional traditions, and through the efforts of those who will succeed the men and women who now are serving and those who have served before them with such devotion, we may all expect with confidence that the next hundred years will be best until the third hundred has been completed.

May the Centennial Celebration be a glorious occasion!

Sincerely yours,
OLIN WEST.

Dr. E. L. Henderson, Trustee, presented the report of a special committee appointed by the Board of Trustees, as follows:

In view of the fact that Dr. Olin West had been elected President-Elect by the House of Delegates at the annual session held in San Francisco in July 1946, and that he served for approximately nine months and was compelled to resign on account of ill health, the committee of the Board recommends that one of the medals presented to retiring Presidents be appropriately engraved and presented to Dr. West.

E. L. HENDERSON, Chairman.
JOHN H. FITZGIBBON.

On motion of Dr. Louis A. Buie, Section on Gastro-Enterology and Proctology, seconded by Dr. H. B. Everett, Tennessee, and carried, the recommendation of the special committee of the Board was adopted.

It was moved by Dr. E. H. Cary, Texas, seconded by several and carried, that the Secretary be instructed to send to Dr. West a suitable telegram, expressing the sentiment and feeling of the

members of the House of Delegates for him and that the telegram be arranged to be sent as a permanent resolution of our gratitude.

Adoption of Proceedings of Supplemental Session in Chicago, 1946

On motion of Dr. George W. Kosmak, New York, seconded by several and carried, the proceedings of the supplemental session of the House of Delegates held in December 1946 were adopted as printed and sent officially to members of the House.

Address of Speaker, Dr. R. W. Fouts

The Vice Speaker, Dr. F. F. Borzell, Pennsylvania, presided while the Speaker of the House read his address, which was referred to the Reference Committee on Reports of Officers and which reads as follows:

Mr. Speaker, Members of the House of Delegates and Guests:

At this Centennial Celebration of the American Medical Association, may I first tender my tribute to those who preceded me in this honored office. The previous speakers of the House of Delegates of the American Medical Association have included Dr. Hubert Work, a Secretary of the Interior and a former President of the American Medical Association; Dr. Dwight H. Murray of Syracuse, N. Y., whose untimely death prevented his occupancy of the office for more than an exceedingly short space of time; Dr. Fred C. Warnshuis, a secretary of the Michigan State Medical Society and later of the California State Medical Society; Dr. Nathan B. Van Etten, a former member of this House and later President of the American Medical Association, and Dr. Harrison H. Shoulders, a secretary of the Tennessee State Medical Society and now President of the American Medical Association. As I call to mind the integrity, the loyalty and the dignity with which they filled this office, I feel that the standard established by them may well be emulated by all who follow.

For many years the President of the American Medical Association presided over this representative body. As the responsibilities and interests of the Association grew, the House of Delegates decided to elect its presiding officer, who was designated as the Chairman. Shortly thereafter the name was changed to Speaker.

Those who occupied the position in the formative years were accustomed to make addresses in which they discussed problems currently facing the Association and made recommendations with reference to future policies and activities. Without doubt, some of these suggestions contributed in great measure to the advancement of the affairs of the Association and the attainment of its objectives.

However, after some years it became apparent to the House of Delegates that these functions were inherent in the office of the President and President-Elect, so that by custom and practice the Speaker of the House of Delegates now limits his opening address to problems dealing with the conduct of the representative body itself and with the customary tribute to those former members of the House of Delegates who have died during the preceding year.

At previous meetings of the House of Delegates I have suggested certain changes in its conduct. These were referred to the Reference Committee on Rules and Order of Business, which recommended their adoption, and the House has seen fit to give its unanimous approval to them. These recommendations have included the restriction of certain areas in the meeting place to delegates alone and the conduct of elections by ballot. The introduction of these changes has seemed to improve both the efficiency of the action of this House of Delegates and the manifestation of its wishes.

There comes before the House of Delegates at this session a proposed revision of the Constitution and By-Laws. As Speaker, I should call your attention particularly to that section of the revision which deals with the composition of the House of Delegates during an executive session and with the limitation on the attendance at such sessions. By its very nature, an executive session of the House of Delegates is concerned with matters vitally important to the life and welfare of the Association. It would therefore seem fitting that such considerations be conducted with the greatest degree of decorum and without the possibility of extraneous influences manifesting themselves before the House of Delegates shall have had opportunity to indicate by its vote the decision it wishes to make.

NEW MEMBERS

Several physicians are making their first appearance as members of this House at this meeting. In order that they may be properly identified, I shall ask them to rise and to remain standing as their names are called. I want to extend to these new members a hearty welcome and to assure each one prompt recognition when he rises to participate in the discussion of any question or other deliberation of this body.

IN MEMORIAM

The Speaker announced that it was now fitting that the House listen to the calling of the names of those who formerly held membership in the House of Delegates and who are no longer with us and then read the list as follows (the dates following the names indicate years of service in the House or as officers of the Association):

Charles G. Abell, Vermont, 1935-1936.
Reuben B. Anderson, Texas, 1934-1935; 1946.
John Andrew, Colorado, 1938-1939; 1941-1944.
Thomas E. Carmody, Colorado, 1927-1928.
Ernest D. Chipman, San Francisco, Section on Dermatology, 1915-1916.
James T. Christison, St. Paul, Section on Diseases of Children, 1918; Minnesota, 1934-1938.
Roland C. Connor, Isthmian Canal Zone, 1926.
A. Bennett Cooke, Tennessee, 1911-1913; member Judicial Council, 1911-1918.
Hatch W. Cummings, Texas, 1930.
Thomas Dorbandt, Texas, 1926.
Judson D. Dowling, Alabama, 1919; 1921-1922.
Wells P. Eagleton, New Jersey, 1924-1926; 1939-1940; 1942-1944.
James M. Flynn, New York, 1938-1941; 1943-1946.
Alfred I. Folsom, Texas, 1933.
William Hale, New York, 1944-1945.
William D. James, North Carolina, 1926-1927.
William S. Lindsay, Kansas, 1919-1920.
Frank R. Mount, Oregon, 1945.
John W. Preston, Virginia, 1927-1931.
Dennett L. Richardson, Rhode Island, 1913.
H. Joseph Rock, South Dakota, 1904; 1907-1908.
Carl R. Steinke, Ohio, 1935; 1937-1945.
F. Leslie Sullivan, New York, 1944-1946.
Samuel D. Swope, New Mexico, 1913; 1915-1916.
Michael A. Tighe, Massachusetts, 1938.
Marion Trueheart, Kansas, 1911.
Richard Frank Werner, Wisconsin, 1911.
Daniel J. Williams, Mississippi, 1904-1905.
Elbert G. Wood, Tennessee, 1930-1946.

The House observed a moment of silence in tribute to the deceased physicians.

REFERENCE COMMITTEES

In the appointment of reference committees, your Speaker has endeavored to give just representation to every state, taking into consideration the representation accorded each state on the various Councils and those members who have served on interim committees. Members who have duties in addition to their functions as delegates have likewise been spared the added burden of extra committee work.

The Speaker requested authorization to appoint three extra reference committees, one on Executive Session; one on General Practice of Medicine and the third on Emergency Medical Service. It was moved by Dr. Walter E. Vest, West Virginia, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, that the Speaker be authorized to appoint the extra reference committees requested.

Reference Committees

The personnel of all reference committees as appointed by the Speaker is as follows:

SECTIONS AND SECTION WORK

Roy B. Henline, Section on Urology, Chairman.
Edgar V. Allen, Section on Experimental Medicine and Therapeutics.
Burt R. Shurly, Section on Laryngology, Otology and Rhinology.
Lowell S. Goin, California.
Scott Lord Smith, New York.

RULES AND ORDER OF BUSINESS

James Stevenson, Oklahoma, Chairman.
William F. Costello, New Jersey.
James Beebe, Delaware.
Raymond L. Zech, Washington.
George A. Woodhouse, Ohio.

MEDICAL EDUCATION

George W. Kosmak, New York, Chairman.
Joseph D. McCarthy, Nebraska.
Thomas S. Cullen, Maryland.
William D. Stovall, Wisconsin.
A. W. Adson, Minnesota.

LEGISLATION AND PUBLIC RELATIONS

Thomas P. Murdock, Connecticut, Chairman.
Thomas A. McGoldrick, New York.
William M. Skipp, Ohio.
Lloyd Noland, Alabama.
Forrest J. Pinkerton, Hawaii.

HYGIENE AND PUBLIC HEALTH

Walter E. Vest, West Virginia, Chairman.
James P. Wall, Mississippi.
Walter P. Anderton, New York.
Leonce J. Kosminsky, Arkansas.
James A. Crabtree, U. S. Public Health Service.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Britton E. Pickett Sr., Texas, Chairman.
L. G. Christian, Michigan.
Allen H. Bunce, Georgia.
Homer Lee Pearson Jr., Florida.
Alfred S. Giordano, Indiana.

REPORTS OF OFFICERS

James R. Reuling, New York, Chairman.
Edward N. Roberts, Idaho.
James Q. Graves, Louisiana.
William H. Halley, Colorado.
Deering G. Smith, New Hampshire.

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Elmer Hess, Pennsylvania, Chairman.
Thomas F. Thornton, Iowa.
Allen G. Rice, Massachusetts.
Albert A. Gartner, New York.
Theodore H. Harwood, Vermont.

CREDENTIALS

G. Henry Mundt, Illinois, Chairman
A. P. Nachtwey, North Dakota.
H. B. Everett, Tennessee.
Charles F. Strosnider, North Carolina.
Raymond F. Peterson, Montana.

MISCELLANEOUS BUSINESS

James Z. Appel, Pennsylvania, Chairman.
Stephen R. Monteith, New York.
John W. Cline, California.
Edward H. McLean, Oregon.
Hugh P. Smith, South Carolina.

EXECUTIVE SESSION

Leland S. McKittrick, Massachusetts, Chairman.
Rollo K. Packard, Illinois.
Edgar P. McNamee, Ohio.
Charles L. Shafer, Pennsylvania.
Howard R. Dudgeon, Texas.
Clark Bailey, Kentucky.
H. B. Mulholland, Virginia.

GENERAL MEDICAL PRACTICE

Wingate M. Johnson, North Carolina, Chairman.
Thomas K. Gruber, Michigan.
A. R. McComas, Missouri.
Howard E. Griffin, Section on General Practice of Medicine.
H. G. Hamer, Indiana.
E. Vincent Askey, California.
Forrest L. Loveland, Kansas.

EMERGENCY MEDICAL SERVICE

Charles H. Phifer, Illinois, Chairman.
Herbert P. Ramsey, District of Columbia.
James R. McVay, Missouri.
Frank L. Cole, U. S. Army.
Morton D. Willcutts, U. S. Navy.
Thomas A. Foster, Maine.
George P. Johnston, Wyoming.

TELLERS

J. Wallace Hurff, New Jersey, Chairman.
Mather Pfeiffenberger, Illinois.
Jesse D. Hamer, Arizona.
Guy W. Wells, Rhode Island.
Francis W. Savage, Minnesota.

SERGEANTS AT ARMS

Frank E. Reeder, Michigan, Chairman.
H. Russell Brown, South Dakota.
Moreton J. Thorpe, Nevada.

Address of President

The Speaker resumed the chair and declared the next order of business to be the address of President Harrison H. Shoulders.

Dr. Shoulders delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker, Members of the House of Delegates and Guests:

For the last nine years it has been my duty and privilege to address this House of Delegates at its opening session. The realization that this is my last scheduled appearance before you stimulates emotions of satisfaction and regret.

This House of Delegates has been gracious and generous to me through all these years. For these considerations I am grateful beyond my power to express. Serving the Association in several different capacities has been a rich experience. This is especially true with respect to my service as President-Elect and as President.

I have been afforded the opportunity to meet with the Board of Trustees each quarter and with the Executive Committee of the Board each month. These privileges have enabled me to become familiar with the efficient and devoted services which these men render to this Association as well as to members of the medical profession at large.

I have also had opportunity to become more familiar with the operation of the several departments, councils and bureaus of the Association and better acquainted with the persons who carry on the many activities of this Association. And I want to say now, as a matter of opinion and conviction, that the affairs of this Association are in good order. They are well administered by capable persons who are loyal to the principles established by this House of Delegates.

By the gracious hospitality of many state and local medical societies in various parts of the country, I have had the privilege of meeting many members and Fellows in their home environments. I have discussed with them, and have become better acquainted with, their local problems and their points of view.

I have had the opportunity to meet with many nonmedical organizations, notably the American Legion and various farm groups. The leaders of these organizations are concerned with the same problems which are of deep concern to the medical profession. I have also observed on the part of those groups an increasing respect for the attitudes and policies of this Association in matters concerned with medical care.

These experiences and many others which I might mention have greatly enriched my life and given me a broader understanding of the many problems concerned with medical care and an acquaintance with many different points of view, both professional and nonprofessional.

These experiences have also increased my appreciation of the philosophy expressed by the great physician-philosopher Galen about eighteen hundred years ago to the effect that "Every organism is a biologic whole and every part of it is related to every other part." That philosophy applies to this organization with the same force and aptness as it does to a single organism.

This meeting is dedicated to the celebration of the hundredth birthday of this Association. It is unnecessary for me to discuss the various steps that have been taken in achieving the progress of medicine in this period, for several reasons. For instance: A history of the Association has been written and is ready for distribution. The Council on Scientific Assembly has arranged for the presentation of several addresses dealing with the progress that has been made in the many different branches of medicine. The Bureau of Exhibits has arranged many displays designed to portray something of this progress. Furthermore, it is not possible to describe and portray in the limited time available all the progress that has taken place in the science and art of medicine in this period. It is also impossible to appraise accurately what this medical progress has meant to the progress of civilization. Suffice to say that the present state of civilization could not have been achieved without the aid and benefit of medical progress.

In the contemplation of the progress and achievements of medicine there is one fact which stands out prominently, and that is that the changes which have taken place in the knowledge, technics and tools of medicine have not brought about a change in the philosophy of medicine. It has remained the same. There has been no need for change. The philosophy of medicine has been, and still is, a philosophy of progress, a progress which is restricted only by prudence and caution. It requires that the value of the new be tested and proved before it is adopted. It is a philosophy of service. It places service to humanity above all other considerations. It is a philosophy of freedom. It recognizes the dignity and importance of human individuality and that it is in an atmosphere of freedom that this individuality finds opportunity for its highest forms of expression in happiness and achievement.

It seems to me it would be appropriate for this House of Delegates at this Centennial Celebration to take action to rededicate the Association to the philosophy which has inspired and guided it throughout the first century of its existence.

The problems which were encountered by our predecessors varied widely in character and importance, but the method of approach to their solution has remained the same. It is characterized by diligence in the search for knowledge and truth, by diligence and perseverance in the acquisition of skills for applying knowledge to the needs of mankind. With this knowledge came wisdom—wisdom in the use of knowledge and skill.

The problems which face medical practitioners today are different in character from those which our predecessors encountered. Yet the fundamental principles they used still apply. It

is important for us to remember that environments, technics and tools may change but that fundamental principles do not change. They are eternal.

Paradoxical as it may seem, many of the problems which are of immediate concern to members of the medical profession are due, in large measure, to the progress that has taken place in the science and technology of medicine. It has always been true that progress in any line brings new problems in its wake. This is especially true of the progress that has taken place in this field. These new problems are chiefly economic in character.

When appendicitis was treated largely by the administration of opium pills and the application of poultices to the abdomen, the cost of administering such treatment was low but the resulting mortality was high. When the physician acquired an understanding of the disease and perfected a technic for its proper treatment, the mortality from the disease went down to a low level but the cost of treatment went up. When diabetes was treated largely by diet and the administration of codeine, the cost of such treatment was low but the mortality was high. The diabetic patient lingered in discomfort for a relatively short while. But when the members of the profession acquired an understanding of the disease and developed a specific method for its treatment and management, diabetic patients were given an almost normal life expectancy in comfort and usefulness. Thus the problems in medical economics have been brought to the forefront.

Economics is a subject which is widely discussed but poorly understood. The simplest definition of the subject, it seems to me, is this: "Economics is a study of the means by which the people obtain the goods and services they need and/or desire."

Economics obtained long before finance existed. In reality, finance is nothing more or less than a tool of economics. Barter between individuals or nations is an economic, not a financial, transaction. Medical economics is concerned, of course, with the means by which the people obtain the medical services they need and/or desire. It is concerned not only with the financing of medical care but with its quality and availability.

For some years the Association has devoted a great deal of attention to many phases of this question. The report of the Council on Medical Service will indicate the measure of effort that has been exerted and the remarkable progress that has been made toward the solution of that phase of the problem which has to do with the financing of medical care.

The phase of the problem which is concerned with the quality and availability of the medical care the people need and/or desire is more complicated and more difficult of solution. There are many different opinions as to the cause or causes which have operated to bring it about. There are also many different opinions as to the remedy or remedies that should be applied to it.

There are areas in the United States in which it is difficult for persons to obtain the type and quality of medical service they need and/or desire. These areas in the main are thinly populated, and the number of persons involved is not large in proportion to the total population of the nation. These problems also have arisen as a result of the progress that has taken place in the science and technics of medicine and as a result of the changes that have occurred in the whole pattern of American life. The slightest study of the subject is sufficient to convince any one that the deficiencies in the availability of medical care are limited largely to the field commonly referred to as "general practice." It is generally considered that 85 per cent of the conditions for which persons seek medical advice can be diagnosed and treated properly and effectively by a good general practitioner. But only about 60 per cent of physicians are general practitioners. The availability to the population of the various services rendered by specialists is more nearly, if not completely, adequate, under modern methods of transportation than are the services of general practitioners. It is apparent therefore that the immediate and most urgent needs are concerned with increasing the availability of the services of general practitioners.

There are many different opinions as to the possible cause or causes of this maladjustment and the possible remedy or remedies which should be applied:

1. It is urged in some quarters that the number of medical graduates is too small and that it should be increased by many thousands. The evidence presented so far in support of this contention does not convince one that such action would solve the problems immediately or later.

2. It has been said that the cause of the maldistribution of physicians and services is due largely to financial considerations on the part of physicians. The evidence in support of this assertion is not convincing, and there is much evidence to indicate that such considerations are not factors of great importance.

3. It is insisted that the present program of medical education, both undergraduate and postgraduate, is of such character as to place too much emphasis on the education and training of specialists and too little emphasis on the education and training of general practitioners. It is insisted with emphasis that the postgraduate training given in most hospitals approved for the training of interns and residents is designed to satisfy the requirements of specialty boards rather than to meet the needs of general practitioners.

It is urged also that the contacts which the student has in medical school and in his postgraduate training stimulate in him an appreciation of the importance of a specialty and diminish his appreciation of the importance of the services of a general practitioner. This particular contention finds support in the results of many experiments that have been conducted for the purpose of securing more general practitioners in smaller communities. Financial aid extended to medical students on the condition that they would engage in practice in small towns or rural areas for a period of years after the completion of their education and training has not been effective to the degree expected. It seems that something happens to the ambitions and interests of such students between the time they enter the medical school and the time they complete their intern or resident training which affects an alteration in their attitudes, ambitions and outlook toward general practice.

The field of medicine is large. It has been expanded by progress. No one person can master the entire field. There is need for specialists, and there is need for a program of training which will qualify specialists. There is need also for general practitioners in even larger numbers than exist at present and there is need also for a program of education and training that will meet their needs.

It is obvious that to accomplish the distribution of physicians according to a fixed ratio to the population would not in and of itself accomplish a satisfactory distribution of medical services. Other factors are to be considered, such as the availability of the several special services which are required for complete medical care and the availability of these services as well as the services of general practitioners.

Specialization has been constructive in bringing about better medical care. It will continue to do so if kept in proper relation to the important and vital branch of general practice. It becomes destructive in its effect when the number of specialists is too large in proportion to the number of general practitioners. It was reported to me that the State Board of Medical Examiners for one state last year asked that each applicant for a license state the type of practice in which he intended to engage. The replies revealed that only 7 per cent intended to engage in general practice. There can be no doubt that a need exists for the restoration of the family physician, or general practitioner, to the position of importance and prestige which he once occupied and which he deserves to occupy today.

The painting by Sir Luke Fildes called "The Doctor" was painted by command of Queen Victoria to commemorate the devoted service of a family physician to the sick child of one of her servants.

In a recent issue of the *Saturday Evening Post* (April 12, 1947, p. 30) under the heading "Norman Rockwell Visits His Family Doctor" there appears a story which every physician and every layman in this country should read. In text and drawings the author describes and portrays something of the life and service of a general practitioner and something of the esteem in which he is held in his community. His place is still high in many communities. It is still high in the hearts of many persons, but too many such places are vacant. I dare say that there is nothing the matter with the public relations of the medical profession in any community that is served by a general practitioner of the type described by Mr. Rockwell.

It seems to me that the whole field of medical education and medical service deserves special study by a special committee of this Association. I therefore recommend that this House of Delegates take action to request the Board of Trustees to appoint and finance a special committee of whatever size is deemed necessary for the purpose of studying all the factors which affect the production and distribution of the type and quality of medical care which the people need and/or desire. In particular such a committee could: (1) define the term "general practitioner," or "general physician," on a functional basis; (2) determine whether or not there is need for a large increase in the number of medical graduates and, if so, its extent; (3) study the present program of medical education and training, both undergraduate and postgraduate, to determine whether or not the content and administration of the program is properly adjusted to the present day needs of the people; (4) study the possibility and feasibility of utilizing smaller community hospitals in a program for the training of general practitioners and the possibility of approving such institutions for such training when a teaching program is properly organized and administered; (5) study the means by which communities in need of additional services may be aided; (6) study such other questions as the committee itself may determine to be necessary in arriving at sound conclusions concerning the entire field of medicine, and (7) propose a long range program designed to overcome present insufficiencies and to meet future needs.

The public relations of this Association have been affected unfavorably by conditions which exist, notwithstanding the fact that the Association is without authority to direct or influence the formation and execution of policies of medical schools and hospitals except to the extent of approving those institutions with programs and facilities which meet certain standards and of disapproving those whose programs do not. This Association does not possess, and does not seek, the power to compel a physician to render service at a place or of a type that is not congenial and satisfactory. Nor does it want any government agency to possess and exercise such powers.

I submit as my opinion that the public relations of this Association are intimately concerned with these particular problems and issues, and that the public relations of the Association will be far more favorably influenced by an effort to solve these problems, which are of such concern to the physician and to the patient, than by a public relations program per se, however expertly administered.

There are many other problems facing medicine. There always will be. There would be no challenge to genius if there were no problems. It is by the solution of problems that progress is brought about. I repeat a statement made many times by many Fellows of this Association, that the medical practitioner is qualified by education, knowledge, experience and idealism to solve these problems. The medical profession in cooperation with the people, on a voluntary basis, will solve these problems, if they are solved at all, on a basis that conforms to the highest aspirations of both groups.

In conclusion, I wish to express my complete faith in the courage, wisdom and idealism of this House of Delegates.

Address of President-Elect

The Speaker called on Dr. E. L. Bortz, President-Elect, who, after announcing that 125,000,000 stamps were that day being released to the American public in recognition of the distinguished services of medicine to humanity, delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

When you conferred the highest honor within your power on Dr. Olin West one year ago, it was a recognition of the distinguished service which he had rendered to organized medicine. His understanding of medical problems and the medical needs of the nation and his executive ability to carry out your mandates were repeatedly demonstrated during his long years of service. The turn of events which brought his resignation has elevated the vice president to the high position of President-Elect. I am deeply conscious of the significance of this elevation.

For many years I have been interested in medical education. It has been my privilege to be a member of the Council on Scientific Assembly which is responsible for the general meetings and also collaborates with the sections in drawing up the program for the annual session.

The superb resources of American medicine have brought medical education to its present state of efficiency. Indeed it may be emphasized that the principal aim of this Association is the maintenance of the highest possible standards of professional training for members of the medical profession, thereby to afford the best possible service to the American public.

EXTENSION OF SCIENTIFIC PROGRAM

The medical schools and special organizations, such as the American College of Physicians and American College of Surgeons, are extending their programs in particular fields. The time is appropriate for the American Medical Association to consider seriously the possibility of an additional scientific session planned for general practitioners of the nation. Such a program might be a two day general session held at the time of the semiannual meeting of the House of Delegates. Specific details could readily be arranged by the Council on Scientific Assembly in collaboration with the Section on General Practice of Medicine.

The membership of the Association and its various important activities have grown so that relatively few cities offer adequate facilities for the annual session. As time passes the size of the Association and the scope of its activities will grow still further. At the present session a large number of our members are not in attendance because of the unavailability of housing space.

Therefore may I respectfully urge that this House take up the problem of utilizing the semiannual meeting for additional scientific instruction.

A further point of merit would be a change of meeting place for the semiannual session. For example, were the nation divided into geographic districts, say eight or twelve in number, the House of Delegates at its semiannual session might convene in the New England area one year, at which time a two day scientific session for the general practitioners would be held; the following year it might elect to meet in some other areas as the Midsouth or Midwest or Far West or South. In this way a rotation of meeting places would bring the excellent resources of the Association to particular areas and furnish, at least for the membership in that particular area, opportunities for study that may not yet have been fully utilized. Collaboration with state medical societies in areas in which the meetings would be held could be readily worked out; it would seem that this scientific session might be fused with the scientific programs of the states involved. The suggestion has the merit that this development would, in a way, take off in part the pressure of the large annual session and, at the same time, extend additional instruction to a larger number of the Association members. I hope the House of Delegates will study this proposal.

AFFILIATION OF MEDICAL STUDENTS

Another point which needs study is the closer affiliation of neophytes of medicine, the third and fourth year medical students. This group should be brought into the medical family at the earliest possible time and given the privilege of more active participation in the activities and privileges of the Association. From this group will come the physicians of the future. Indifference on the part of the Association to this group may be corrected by affiliate membership, the reestablishment of a student section in THE JOURNAL and the encouragement of presentation of scientific papers at the county, state or even national level. There might even be a student section of the scientific assembly established for their benefit. Medicine should recognize its offspring—the coming generation. The

benefits to be derived from bringing them into closer contact with organizational activities should develop leaders at an earlier stage in the professional careers of medical practitioners.

May I respectfully propose that the House authorize the Secretary, in collaboration with the Councils and other bureaus, to prepare an attractively illustrated booklet which will contain a description of the various activities carried on by the American Medical Association and a brief statement of the significance of these activities in behalf of the preservation of the nation's health and in support of a progressive program of medical education. In the spring of each year, or at any other time that classes are graduated from medical schools, the American Medical Association would send one of these booklets to each graduate. The young physicians of the nation would then have a guide to assist them in a clearer understanding and better appreciation of the organization that is protecting the profession which represents their life work. At present there is an utter lack of appreciation on the part of medical students and younger physicians of the vast amount of important work which is being carried on by this Association in behalf of the physicians throughout the land.

PUBLIC RELATIONS

The public relations activities of the Association need further clarification. Since its creation a century ago, the Association has been continuously active in campaigning for a better understanding of health problems and the control of disease on the part of the general population. The antagonism of charlatans, quacks and cults is evidence of the effectiveness with which the Association has waged its battle against the forces of ignorance and destruction.

Public relations is the problem of interpreting the objectives of the medical profession in terms acceptable to the public. The cooperation and support of the laity is absolutely essential in a modern program for the maintenance of health and the control of disease. Each physician has the responsibility to keep his clientele informed of the aims toward which organized medicine is working. In this respect each physician may be regarded as a public relations contact, or better still human relations contact, which the profession in general should utilize.

QUALIFIED SPOKESMEN

Organized medicine needs more experienced representatives who may appear before lay groups and legislative bodies. These spokesmen should emphasize that the energetic program of the Association is in the public interest and for the protection of all members of the population. Too frequently the general public and at times the press also receive the impression that the medical practitioner is motivated by selfish interests and indifference to the public weal. Nothing could be further from the facts. A vast amount of convincing data is available through the bureaus and councils of the American Medical Association which will demonstrate clearly that physicians are leaders in the field of social progress and in the control of disease. During the last hundred years the human life span has extended from forty years in 1847 to approximately sixty-seven years in 1947. It is impossible to mention all the epochal contributions which medical science has made and organized medicine has fostered in the interests of a more abundant life for the people of our land.

Speakers' bureaus for the training of those who are willing to serve their profession should be organized in every county medical society. Adequate material will be furnished these bureaus by their state and national organizations.

THE WOMAN'S AUXILIARY

The Woman's Auxiliary of this Association was founded twenty-five years ago, so on this happy occasion the Auxiliary is celebrating its Twenty-Fifth Anniversary. Congratulations are in order. The fair ladies are favored by nature in their understanding of social relations and in their intense loyalty to this great profession. The Auxiliary represents probably the most important instrument in the field of public relations which organized medicine has, and yet its value has been for the most part overlooked. In many ways the Woman's Auxiliary can explain to the public the ideals and objectives for which medicine stands. A word of caution to the members of the Auxiliary as to Association members: a well informed mind using statements based on factual data available from the Association files is essential before any statements are made to public groups. The members of the Woman's Auxiliary should utilize the publications of the various bureaus and should seek counsel from the headquarters staff in order that a clearer understanding may exist of the issues at stake. Armed with this information the Woman's Auxiliary may play a determining role in its contacts with women's organizations, ladies of the press, religious groups and, not least in importance, the women members of legislatures. The Woman's Auxiliary is facing a period of expanding opportunity.

THE NURSING CRISIS

Within the past few years a serious crisis has developed in the nursing field. A questionnaire issued by the American Surgical Association indicated that the quantity of nursing talent available was 60 per cent of what it should be, and the quality was estimated as down to 75 per cent. It must be admitted that the nurses have many real grievances today. While special groups in the field of public health, industrial work, teaching and administration are rapidly moving toward more stabilized hours of work, better compensation and programs for social security the status of the private duty nurse and the general floor nurse in the hospital is unsatisfactory. Long hours, irregular employment, lack of any pension or security program and indifference on the part of groups which should be cognizant of the nurses' needs has caused a serious shortage in one of the noblest of the nation's professions. It is high time that physicians study the various ramifications of these issues and exert their influence in support of the objectives which the members of the nursing profession are now striving to attain.

I hope that this House will move that the President name a committee of five, to be known as the Committee on Nursing Problems. This committee would investigate the present objectives of the nursing profession, the standards of education, the time involved for training, the various curriculums, the supply of nurses and quality of services rendered, remuneration, participation in the determination of administrative policies and the question of security benefits. This committee would further act as a liaison with the various nursing organizations and would obtain information of significance to serve as the basis of a report to the House of Delegates at its next meeting. This Association should be able to make a definite contribution in behalf of its close allies—the nurses.

ACTIVITIES OF COUNCILS AND BUREAUS

Each member of this House should be clearly informed concerning the many activities of the departments, bureaus and councils in the headquarters of the American Medical Association. In addition to the many publications issued at regular intervals, the large staff of competent investigators and their assistants is carrying on studies of the greatest importance in the field of medical education, public instruction and the distribution of physicians. Problems of public health, rural medicine, health insurance and related fields are being studied by highly qualified experts.

The accomplishments of the Council on Medical Education and Hospitals have been widely heralded. Improvements in the training of physicians and in hospital service have been brought about in many instances through the influence of this council.

The Council on Physical Medicine is conducting studies in the realm of atomic energy and the application of radioactive substances in the field of medical research; the Council on Pharmacy and Chemistry and that on Foods and Nutrition have extensive programs for the investigation of a number of products in their respective fields. The field of Industrial Health is being examined by that council so that recommendations for the improvement of conditions under which industrial employees

work may be extended to industries throughout all sections of the country.

Work of the Council on Medical Service and its contributions in the field of professional relations, special studies and assignments and the programs of regional conferences have been of the greatest benefit to organized medicine. It has published a reliable directory of plans for the various forms of voluntary health insurance. Before issuing its stamp of approval each plan is carefully examined and flaws when present are pointed out. Publications from this council are available to any one who is interested in making a contribution to the problem of health insurance.

One of the most active bureaus supported by the Association is that on Legal Medicine and Legislation. Wise counsel from the director of this bureau has been an invaluable aid in evaluating the significance of the many legislative activities bearing on the practice of medicine as they appear at regular intervals in the national and state legislatures. This council has been most cooperative with the state medical societies which have required information from time to time.

Attention should be drawn to the recently created Bureau of Medical Economic Research, which is under the direction of Dr. Frank G. Dickinson, distinguished economist, who recently joined the staff. This bureau has a far reaching research program for the examination of the supply and demand problem, the distribution and cost of medical service. Many investigations are under way. The data already collected and analyzed indicate convincingly that the plan of action which the Association has followed during the past several years is in accord with the actual needs of the nation. From time to time constituent medical societies will be furnished important statistics that may be used in state and national legislatures for illuminating health problems under discussion.

MEDICAL PREPAREDNESS

The Committee on National Emergency Service has studied the data collected from some 25,000 questionnaires and letters sent in by members of the Association. These physicians for the most part have voiced their opinion of medical service in time of war and have offered suggestions which, if implemented, will lead to higher efficiency of medical service in the event of a future catastrophe. The American Medical Association will actively cooperate with governmental officials on the highest civilian level to work out a program that will, it is hoped, be formulated for prompt medical service if the need should arise.

A NEW HOME FOR THE AMERICAN MEDICAL ASSOCIATION

The rapid expansion of activities in the various fields of medical education and the promotion of health programs for the nation has necessitated a decided increase in personnel and equipment at the headquarters of the American Medical Association. Already the present home of the Association is bulging at the seams and space is at a premium. During the next twenty-five years even greater activity with some increase in personnel will be necessary.

The House of Delegates must take under advisement a building program. Adequate time should be taken to study the medical needs of the nation as they will appear in future years. With this in mind a structure should be raised, a cathedral of health, if you will, dedicated to the high service of health maintenance, the prevention of disease and the extension and enrichment of human life. The American Medical Association has never been as powerful and influential as it stands today. From all quarters of the land its counsel is sought, its recommendations asked for and its approval desired. It is moving in forward directions. The American Medical Association is on the march to more and greater accomplishments. The time is appropriate for the House of Delegates to survey its present status and draw up adequate plans for the future.

On motion of Dr. E. S. Hamilton, Illinois, seconded by several and carried, the House recessed at 12:30 p. m. to reconvene at 2 p. m.

Monday Afternoon, June 9

The House of Delegates was called to order at 2:10 p. m. by the Speaker, Dr. R. W. Fouts.

Reports of Officers

REPORT OF SECRETARY

The Secretary, Dr. George F. Lull, presented his report as printed in the Handbook of the House of Delegates, requesting the delegates from the constituent associations personally to introduce the resolutions contained in his report. The Speaker referred the report of the Secretary to the Reference Committee on Reports of Board of Trustees and Secretary.

On motion of Dr. L. J. Kosminsky, Arkansas, duly seconded and carried, consent was given unanimously to interrupt the regular proceedings of business to introduce some foreign guests.

Addresses of Major General Raymond W. Bliss and Rear Admiral Clifford A. Swanson

Dr. E. L. Henderson, Trustee, introduced Major Gen. Raymond W. Bliss, Surgeon General of the United States Army, who presented the following address:

As an humble member of the medical profession it is a great privilege to be here in Atlantic City this week. It is intensely stimulating to be associated with my colleagues and in listening with them to the expositions and discussions by the leaders in medicine on the current thoughts in medical knowledge.

I am honored to speak to you as the representative of army medicine. What is the status of army medicine and where is it headed?

Army medicine, the Army Medical Department, is at this time in one of the critical periods of its existence. The current and prospective mission of the Medical Department is many times greater than it was prior to World War II. However, the means of the Medical Department to accomplish this mission have not increased but have actually diminished. Because of many reasons we are wofully short of the small nucleus of doctors necessary for our regular corps. We must, first of all, rebuild our regular Army Medical Corps. I believe that the plans being carried to completion toward this end are founded on a professionally sound and solid basis. They are being developed with the accepted advice from and complete cooperation with the leaders in civilian practice.

One of these ways to this desired objective is the bill now before Congress about which I am sure the Secretary of War, Mr. Patterson, will speak to you. I cannot endorse this legislation too strongly. I consider its passage essential.

There is under consideration unification of the armed services. Whatever the outcome of that, we must certainly have a unification of effort by full cooperation and by every coordination in the use of the respective means of all the government medical services, Army, Navy and Public Health and the Veterans Administration, in intimate conjunction with the means of the best in civilian medicine, if we are all to function in the most effective manner.

We must, of course, draw on civilian resources. Fortunately these resources are available. It is our responsibility to make full use of them.

In the Army we have made a beginning this past year to do, with the help of civilians, what we could not possibly have done alone—to keep the quality of our professional care as high as possible—to develop a residency training program so that the army doctor could grow professionally—to supervise and keep under constant appraisal the work of all our medical installations, and by our study and research keep part of an eye toward the future. We have started; we will continue.

In the past, the Army Medical Department has made significant contributions to the progress of medicine—witness the names and work of Beaumont, Reed, Sternberg, Gorgas. We have every reason to expect that it will make similar contri-

butions in the future. But to accomplish this and to discharge its responsibility to the Army, the Medical Department must become part of the major stream of American medicine. That is where the Medical Department is headed.

Dr. Henderson then introduced Rear Admiral Clifford A. Swanson, who addressed the House as follows:

First, I want to offer the Navy's acclaim and congratulations to the American Medical Association, which has just attained its one hundredth anniversary. To have become a centenarian is a much greater distinction for an institution than for a man. A man might attain that age without justification—so far as his neighbors and associates can see—but an institution—at least in America—can survive and grow only because the people want it. The American Medical Association has held its strength and vitality through all the economic and social changes of the last hundred years because it has upheld the standards of medical practice and medical education. Through its leadership and its many publications it has sustained a plane of medical practice which both the profession and the population at large will continue to demand and which they know they can be assured of only by the continued strength of the American Medical Association.

Among the many problems that confront the Medical Department of the Navy today there are several in which the general medical profession has a distinct interest; there are some that must be shared and faced mutually by, and in their solution, with mutual benefit to, the civilian profession and the Navy Medical Corps.

One of the first and most serious of these is the matter of atomic weapons, particularly defense against them and the medical features of this defense.

About a half century ago, when the American Medical Association was only a half century old, the work of Roentgen, Becquerel and the Curies in radioactivity and then the epochal pronouncement of Einstein that matter can be transformed into energy to the tune of his fundamental law that $E = MC^2$ started us on a long march that reached a world shaking climax at Hiroshima and Nagasaki two years ago. Until those fateful days in August 1945 the world and the medical profession at large knew nothing of the medical implications of an atomic explosion because, until then, none but those of the inner circles of atomic bomb production knew that there was even such a thing as an atomic bomb. Since then, however, knowledge of the biologic effects of atomic weapons has rapidly accumulated and has been widely disseminated. There is now in progress in the two Japanese cities a survey of biologic effects which may continue for years in order to give us the long range picture. Much more closely controlled studies have been possible with the Bikini animals, and this work may also continue for some years at the Naval Medical Research Institute.

As every one is now well aware, civilian casualties in atomic warfare can reach huge proportions and will be of a clinical pattern that was little known before 1945. Problems of evacuation, of treatment, and the great public health problem of radioactive contamination of large areas of human habitation as demonstrated by the underwater explosion at Bikini are matters that cry for answers and extensive planning, both by military and by civilian medical authorities.

There are unprecedented industrial hazards in the manufacture and handling of fissionable materials. The safety records established by those responsible for safety precautions and regulations in the manufacture of the bombs, and during the explosions in the presence of some forty thousand people at Bikini, are really phenomenal; in fact, those safety records were perfect. They show the possibility of achieving an incredible degree of safety even when surrounded with hazards of unimaginable potentialities. As the scale and intricacy of manufacture are increased and as the uses of fissionable materials are multiplied there will be larger industrial medical tasks to perform in devising safety measures and in the constant education of personnel as to the observance of the precautions that must be established.

But even, we are happy to say, such an ill and terrifying wind as a war has blown some good. There is indeed little, if anything, good that can come out of a war, but of one thing we can be sure—it always furnishes a tremendous impetus to scientific advances. And one great by-product has come to us in a whole new array of radioactive isotopes that may prove to be of high clinical value. This is a field whose exploration by medical research workers is still in the pioneer stage but which may open up a new medical world of fruitful returns. In the Navy this work is being directed by the newly formed Division of Atomic Defense in the Bureau of Medicine and Surgery.

The Navy is always working on plans to meet possible future disasters. In caring for civilian casualties in future wars there may be many occasions when the situation will call for the combined and coordinated efforts of civilian and military medical personnel. As an illustration in this connection it is of interest that in the recent disaster at Texas City, Texas, which attracted national attention, the lives of a considerable group in the rescue party were probably saved because a medical officer promptly evacuated the injured and medical personnel from the first aid station, which shortly afterward was engulfed by the flames of an exploding oil tank. This officer's war experience probably assisted him in making the decision, as he was a veteran of the Pacific campaign.

One of our most acute and pressing problems in the Navy today is that of obtaining and of holding medical officers. Having witnessed the general shortage of doctors and nurses and the consequent understaffing of civilian hospitals in recent years, you will understand what it means to have to spread thinner and thinner the medical personnel that is required to carry on a heavy medical program. You will understand too some of the reasons for our present shortage in the Navy. Medical education has become a long and expensive process. Consequently, the medical officer in the Navy begins his career considerably older—and poorer—than officers of similar rank in other branches of the Navy. He has already spent more money on and devoted more years to his education than one does in any other profession. To correct this situation we have designed some legislation which is now in Congress and which, of course, we hope will receive favorable action there. It provides for a substantial increase in compensation and thus, if passed by Congress, will offer a much needed incentive for young medical men to consider entering the Medical Corps of the Navy as a career. But we must offer them, and we are offering them something as vital, as financial incentive, and that is the opportunity for professional advancement. We are offering internships and residency training in our naval hospitals; training which meets the approval of the A. M. A. Council on Medical Education and, for purposes of credit toward certification by the various specialty boards, residency training in a number of medical and surgical specialties, including obstetrics and gynecology, of a quality and scope that is approved by those boards. Also we are now carrying out a program of unprecedented size in sending medical officers to extensive postgraduate courses at various of the great universities and medical centers of this country.

I should like at this point to touch on the problem of unification of the medical services of the armed forces. Both General Kirk and I have appeared before committees of the Congress in support of the National Security Act of 1947, commonly known as "the Armed Forces Unification Bill." I am sure we are in close agreement as to the principle of attaining several desirable objectives which we feel are most worthy as far as the medical services are concerned.

I believe these objectives to be:

(*a*) To provide the best possible medical services for the armed forces with the total means available.

(*b*) The most efficient utilization of Medical Department personnel—physicians, dentists, nurses and other assisting personnel—in order best to carry out the overall mission of providing the medical services required for the armed forces in peace and war.

(*c*) The realization of all possible economies in the use of funds, facilities, installations and personnel which are compatible with acceptable and modern standards of medical services for the armed forces.

(*d*) The balancing of the medical needs of the armed forces in relation to the total medical resources of the country.

(*e*) To promote and maintain the highest possible professional caliber of the medical personnel of the national defense establishment.

(*f*) To insure that the medical aspects and the medical implications of any future war are taken into full consideration at all policy-forming levels and at all stages of planning in the national defense structure.

It seems to me that the chief difference between the plan which was proposed by General Kirk and my concept lies only in the organization methods by which we propose to accomplish these objectives. When all the realities and ramifications of the problem are taken into consideration, I believe that the most workable method of bringing about the desirable ends I have just enumerated is by working through the agencies which are provided for in the proposed National Security Act. As a logical part of their functions as prescribed in the bill, these agencies, i. e. the Joint Staff, the Munitions Board and the Research and Development Board, under the direction of the President and the Secretary of National Defense, would be expected to discharge the responsibility of establishing a pattern of close team work between the medical services of the armed forces, just as they would perform similar functions in respect to the other fields of military endeavor. I believe it is only reasonable to expect that each of these agencies in its own sphere would want and would have a medical subboard or medical committee, which I have chosen to call a "medical component," to assist and advise it in all medical matters and in all problems having substantial medical implications. I believe the medical components of the three agencies to which I have just referred should each be composed of the Surgeons General of the respective branches of the armed forces, or their appropriate deputy medical representatives, together with a civilian medical representative where appropriate.

At the higher level I have advocated that there also be a medical component to assist and advise the National Security Resources Board in the medical aspects of that board's prescribed function to advise the President concerning the coordination of military, industrial and civilian mobilization; further, that this latter medical component or council at the national level should be composed chiefly of representatives of the civilian medical profession at large, with a minority of associated military medical representatives.

I sincerely believe that the acceptance of such a concept as I have outlined will not only insure medical participation in military planning and in the determination of national defense policy at all levels but will also be a long step forward in recognition of the great importance which medical matters must henceforth be accorded in providing for the national security in time of critical national emergency.

It should be of interest to the entire medical profession to know that the Secretary of the Navy and the Navy Department have sanctioned and concurred in my concept of the overall medical plan which I envisage would be brought into being as a natural consequence of the enactment of the National Security Act of 1947.

What might be called the overgrowth of specialism in medicine has posed another serious problem to the Medical Corps of the Navy. The Navy has many specialists in all fields of medicine and surgery and we realize that they are all needed, but the naval surgeon must always be a good general practitioner who can face the ordinary emergencies of medical practice fully equipped to deal with them. The Navy after all is a seagoing organization, and a considerable number of our naval doctors must be with the forces afloat or at overseas stations. A large ship such as a battleship or carrier may easily have from 1,500 to 2,500 officers and men on board. Two or three doctors to form a medical staff must deal with most of the problems that a physician is expected to need in a community of that size. If they are in the middle of the Pacific and a surgical emergency arises, they cannot send the patient around the corner to a surgeon. True enough, these patients at a later date may be transferred to a hospital where specialists of every sort are on hand. But a great deal of active medical and surgical practice must be carried on directly by the medical man on the ship. We need, as you see, to have many well trained and capable general practitioners.

From three to five years of general practice has always been regarded as a sound basis on which to begin specialization. It has been said that the average general practitioner in civil life is a specialist in obstetrics. The average naval surgeon we like to think of as a general practitioner who is a specialist in traumatic surgery and preventive medicine. Many of our leading specialists in the Medical Corps have come through this preliminary training in the field of general practice, and we feel that they are better specialists for it and certainly they are better medical officers. It is surprising how well a radiologist can take out an appendix or an ophthalmologist can take care of a pneumonia patient when a general surgeon or an internist is not available.

But now the trend seems to be that the newly graduated doctor, as soon as he has completed his internship, feels he must enter immediately on his residency training for specialization. As a medical man I believe this is wrong.

This tendency, it appears, has been fostered in considerable degree by the growing influence of the specialists' boards. Now the one consuming aim of the young doctor, from the time he graduates from medical school, is to rush toward the day when some specialist board will certify him. Everything else—so it seems—such as the matter of becoming a good and useful practitioner in his community (or in one of the government medical services) fades to a level of secondary importance.

There is no doubt that the specialist boards have rendered a great service to medicine. Doubtless they have done much to raise the standards of medical education and specialist practice. But if the boards have the effect of driving every medical graduate into some specialty they are doing the profession and the citizenry a disservice. We are suffering from this specialism stampede in the Navy and I suppose that civilian practice is similarly feeling it effects.

And I should like to leave with you this parting thought: that we might well take stock of this situation and return to the more conservative formula of superimposing specialty training on a broader foundation of general clinical knowledge.

Reports of Officers

REPORT OF BOARD OF TRUSTEES

Dr. R. L. Sensenich, Chairman, presented the Report of the Board of Trustees as printed in the Handbook, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, with the exception of the Report of the Committee on National Emergency Medical Service, which was referred to the Reference Committee on Emergency Medical Service.

SUPPLEMENTARY REPORT OF BOARD OF TRUSTEES

Dr. Sensenich announced that the Board would submit a supplementary report in executive session and then submitted the following supplementary report, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Mr. Raymond Rich and Mr. Swart have resigned, and the Board has accepted their resignations as immediately effective. The Board of Trustees in 1946 employed Raymond Rich Associates to make a survey of the activities of the American Medical Association. This survey was reported to the House of Delegates at the session in San Francisco in July and at the same time the Board indicated actions already taken to make effective some of the recommendations. At the December session a further consideration was given to the entire report, and the House of Delegates made certain specific recommendations. In

the meantime, the Board of Trustees has been concerned with the budgets and the expansion of the activities of various departments, councils and bureaus, including the Division of Public Relations. During the past six months most of the activities of the Division of Public Relations have been concerned with the centennial of the Association. Mr. Raymond Rich was employed as a consultant for this period. The Board of Trustees has authorized the General Manager to conduct further investigations as to the next steps in the public relations activities of the Association. The Board proposes to arrange for suitable public relations counsel. When the activities in connection with the Centennial come to an end, a redistribution of present personnel may be feasible, an increase of personnel will be made where necessary and additional funds will be made available. These facts will permit more intensive promotion of the public relations of the Association with reference to its national health program. For the remainder of the present session, Mr. John Bach will be in charge of the Press Room, and the General Manager and the Editor will advise on questions related to the House of Delegates and the scientific program respectively.

REPORT OF JUDICIAL COUNCIL

Dr. Edward R. Cunniffe, Chairman, presented the Report of the Judicial Council as published in the Handbook, which was referred to the Reference Committee on Legislation and Public Relations.

SUPPLEMENTARY REPORT OF JUDICIAL COUNCIL

Dr. Cunniffe presented the following supplementary report of the Judicial Council, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

This report pertains to the resolution adopted at the meeting of the House of Delegates in San Francisco in July 1946, providing for a revision of the Principles of Medical Ethics, which was referred to the Judicial Council.

The Principles of Medical Ethics were first written for the physicians of England in 1803 by Dr. Percival, and in 1847 at the meeting of the American Medical Association held in Philadelphia Dr. Isaac Hays was appointed chairman of a committee which was instructed to formulate Principles of Medical Ethics for the American Medical Association. Dr. Hays reported the consummation of this assignment at the meeting of the American Medical Association the following year. In the presentation of this document he followed very closely the Principles of Medical Ethics as laid down by Percival some sixty years earlier.

These Principles were modified somewhat in 1880 and since then a few additions have been made to them. But with very little change in their context, they have served the American Medical Association for practically one hundred years. Modifications and additions have been written in the language of several different periods, and the Council feels that this language should be rewritten so that it may be more easily interpreted.

However, we must weigh carefully each change in the structure of this revision on account of its great importance in relation to the conduct of members of the medical profession.

Under the old, but slightly modified, Principles of Medical Ethics adopted in 1848 the medical profession has progressed, has attained its present high position and has been responsible for great scientific achievement. The Council will not recommend changes in these Principles without the careful study and the mature deliberation which the problem merits. It is a work which must proceed with great caution. As Winston Churchill has said, "It has been my experience in great affairs that none of the fine accomplishments have ever been made other than slowly."

Realizing the importance of this matter, the Council at different times has requested those who introduced the resolution and any others who wished to offer suggestions to communicate with it and has offered the assurance that these communications would be gratefully received. Despite these appeals, only three letters have been received. In two, it was suggested that the Principles of Medical Ethics remain as they are, and in the third the Council was requested to provide laws or codes instead of principles to govern the conduct and activities of physicians.

The Council desires to make a sound revision which will not only have permanent value but will provide for adjustments which will fit changing conditions. There are many important factors involved in the consideration of this problem, and the Council again appeals to all those who are interested to send to it suggestions which are considered to possess value. These suggestions will receive serious consideration. Particularly will the Council appreciate suggestions concerning principles rather than laws or codes.

The Council is now studying that phase of the Principles of Medical Ethics which pertains to those high ideals which should motivate the conduct of the physician in relation to his patients and in relation to other physicians rather than that phase which deals with economics or ethics. It does not believe that a sound revision of the Principles of Medical Ethics of enduring value can be made hurriedly.

The Council feels that a more specific or detailed report should not be made until its task is nearer completion, and this statement is offered as a progress report only. It is submitted with the suggestion that the approval of the House of Delegates be granted for a continuance of this important study by the Council.

Respectfully submitted,

EDWARD R. CUNNIFFE, Chairman.
LLOYD NOLAND.
JOHN H. O'SHEA.
LOUIS A. BUIE.
WALTER F. DONALDSON.

REPORT OF COMMITTEE ON CENTENNIAL CELEBRATION

Dr. Edward R. Cunniffe, Chairman, presented the following report concerning the program for this Centennial Celebration:

I am sure that you are all aware that a commemorative stamp has been granted by the government, which was issued today and is at hand and available at a desk in the lobby of this hotel. I should like to call your attention to the fact that 125,000,000 of these stamps have been printed, that 80,000,000 stamps have been ordered by the various postmasters in the United States, and that there are 2,000,000 stamps in Atlantic City today.

It is customary when a commemorative stamp is issued that a certain ceremony be followed, and that will happen tonight at the dinner of the House of Delegates, when Assistant Postmaster General Lawler will be presented to the House and will make a short address in presenting an album with the stamps to Dr. Shoulders, your President, who will respond in behalf of the Association. This will not take very long. It will be a very short ceremony.

The stamp, of course, is a painting of an old picture called "The Doctor." I don't know who ordered the painting, but the physician who is shown in this painting was a physician to Queen Victoria and also to King Leopold of Belgium. We will have the original working drawing of this painting on exhibition sometime during the week. It is the property of Dr. Donald Guthrie of Sayre, Pa., and he has sent it down with a description of the events that concern the painting. The painter wanted to show the physician, not as a physician to royalty, but rather as one to the poor, and that is the reason it has been selected for this stamp.

The program continues tomorrow night with a general meeting, and that meeting will open with a musical program, to be followed by an invocation to be given by Rev. Mortimer Sullivan. Then announcements, if necessary, will be made by the chairman of the local committee and the chairman of the Centennial Committee. Following that, the chairman of the Centennial Committee will introduce foreign guests. The installation of the President will follow, after which there will be a presentation of the Distinguished Service Medal by Dr. Bortz, followed by the introduction of more foreign guests by the President.

Dr. Sensenich, Chairman of the Board of Trustees, will then present the President's Medal to the retiring President, Dr. Shoulders, and also make the awards of Honorary Fellowships to foreign guests.

I forgot to say that Dr. Bortz will present the Distinguished Service Medal to Dr. Christian.

On Thursday night the President's Ball will be held in Convention Hall, Wednesday night being given over to the fraternities and societies for their meetings and dinners. At the President's Ball music will be furnished by two famous orchestras providing dance music. There will be three reception lines, one headed by Dr. and Mrs. Shoulders, Dr. David B. Allman, chairman of the local committee, Mrs. Allman and ten foreign guests; the second line, by Dr. and Mrs. Bortz, Dr.Hilton S. Read, the deputy chairman of the local committee, and Mrs. Read and ten foreign guests; and the third line, the President-Elect and his wife, if he is not a bachelor, Dr. Royal Schaaf, president of the Medical Society of New Jersey, and Mrs. Schaaf and ten more foreign guests.

I think I would be remiss if I did not say a word about the fact that "The History of the American Medical Association" is now ready and on sale. It is very well worth while, and I am sure the men will take a great interest in securing copies and taking them home with them.

I also want to say at this time, because I probably will not have a chance to come before you again, that the committee has worked hard in formulating this program, with the exception of the chairman. I have just the honor to report their hard work to you, because it has been very easy for me. I must say that, without the help of Dr. Fishbein, Dr. Lull and Miss Niehoff, this could not have been accomplished. There have already been two days of this program, the dinner on Saturday night and the services yesterday morning, which I think have been fairly successful. I want to say that we appreciate very much the work which they have done, and without them we could not have done anything. Thank you very much.

REPORT AND SUPPLEMENTARY REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

Dr. Edward L. Bortz, Chairman, presented the report of the Council on Scientific Assembly as published in the Handbook and the following supplementary report:

REQUEST FOR SECTION ON PHYSICAL MEDICINE

The Council on Scientific Assembly has received a request from the Council on Physical Medicine for the establishment of a Section on Physical Medicine.

RESOLUTION ON CONFERRING HONORARY FELLOWSHIPS

Resolved, That the House of Delegates authorize the Board of Trustees to confer Honorary Fellowships on (*a*) those distinguished guests in attendance at this session who are official representatives of foreign governments, (*b*) official representatives of foreign medical associations and (*c*) all distinguished guests who have been invited to present papers before the General Scientific Meetings and the sections of the Scientific Assembly.

Dr. Bortz reported that action on the resolution would be needed at once if it is the will of the House to confer Honorary Fellowships on the distinguished foreign guests.

It was moved by Dr. L. G. Christian, Michigan, and seconded by Dr. Thomas S. Cullen, Maryland, that the House resolve itself into the Committee of the Whole. The motion was lost on a rising vote.

Dr. James R. Reuling, New York, moved that the usual order of business be suspended and action on this resolution be taken at this time, and the motion was seconded by Dr. Mather Pfeiffenberger, Illinois. After discussion, Dr. Reuling withdrew the motion and substituted another motion, with the intention of a twenty-four hour notice, to elect the invited foreign guests Honorary Fellows at the meeting the next day and the substitute motion was seconded by Dr. Thomas S. Cullen, Maryland.

The Vice Speaker, Dr. F. F. Borzell, suggested that with the presentation of the following proposed amendment to the By-Laws and its adoption the next day the question would be answered:

Amend the section of the By-Laws referring to Honorary Fellows to read:

"Honorary Fellows. Physicians of foreign countries who have risen to preeminence in the profession of medicine and who are in attendance at the session may be elected to Honorary Fellowship by the House of Delegates on the nomination of the Council on Scientific Assembly. The several sections may make recommendations to the Council on Scientific Assembly regarding individuals for such nomination.

Dr. Holman Taylor, Texas, moved to amend the motion by suggesting that the revised By-Law quoted by Dr. Borzell as a part of the proposed revised Constitution and By-Laws be voted on before the suggested revision of the entire Constitution and By-Laws is considered. The suggested amendment of Dr. Taylor was seconded and carried, after which the Speaker declared that amendment before the House for action the next day on the Report of the Reference Committee on Amendments to the Constitution and By-Laws.

PROGRESS REPORT OF COMMITTEE ON NATIONAL EMERGENCY MEDICAL SERVICE

Dr. E. L. Bortz, Chairman, presented the report of the Committee on National Emergency Medical Service as printed in the Handbook, including the revised part of the report as follows, which was referred to the Reference Committee on Emergency Medical Service:

Revised Portion of Report of the Committee on National Emergency Medical Service

On the basis of studies of questionnaires returned and of letters from key individuals, and after eliciting the considered opinions of representatives of the Army, Navy, United States Public Health Service, the Veterans Administration, Federal Security Agency, the Secretary of the Interior and the Advisory Medical Committee to the Secretary of War, and after a thoughtful review of the events of medical participation in World War II, and in consideration of the current developments in modes of warfare, the Committee at this time desires to present to the Board of Trustees for transmission to the House of Delegates the following recommendations:

I. That the President of the United States of America and the Congress be respectfully urged:

(*a*) That in war and in peace the Surgeons General of the armed forces have the authority and responsibility for participation, with commensurate rank and at the level of the chiefs of staff and the chiefs of naval operations of the armed forces, in all military and naval planning, organization and operations as these relate to medical, health, sanitary and welfare services; and for the assignment and utilization of medical and allied personnel at home and abroad.

(*b*) To require that the Secretary of War and the Secretary of the Navy and such other cabinet officers as may be charged with responsibility for our national defense give consideration to possible civilian requirements in a total war in the planning, location and construction of military hospitals, and that they reexamine their organizational tables and other procedures used during World War II in order to avoid (1) the medical overstaffing of units; (2) the wasting of the time of doctors of medicine in the performance of nonprofessional duties; (3) the removal of an excessive number of doctors of medicine from civilian hospitals and from civilian practice; and (4) a rather widespread failure to make assignments, determine rank and provide for the rotation of doctors of medicine on the basis of their professional qualifications, experience and age.

II. That the American Medical Association go on record as favoring the creation of a National Emergency Medical Service Administration as a continuing function of government, such administration to consist of representatives of the Advisory

Board for Medical Specialties, American College of Physicians, American College of Surgeons, American Dental Association, American Hospital Association, the Catholic Hospital Association, American Medical Association, American Nurses Association, American Public Health Association, American Veterinary Medical Association and Association of American Medical Colleges.

The Administration shall be charged with the responsibility at all times (1) for effecting plans for total mobilization of the medical and allied resources of the nation; (2) for the procurement and allotment of medical and allied personnel in case of a national emergency; (3) for the coordination of civil and military medical and allied services in times of threatened or actual national emergency, provided that in the exercise of this function there shall be added to the administration the following members:

The Surgeon General, U. S. Army.
The Surgeon General, U. S. Navy.
The Surgeon General, U. S. Public Health Service.
The Air Surgeon.
The Medical Director, Veterans Administration.
A representative of the National Research Council.
A representative of the American Red Cross.

III. The experience of the American medical profession in the armed forces during the recent conflict and an examination of the effect of total war on civilian populations require that we participate in continuous study, planning and supervision of the adequacy of medical, health and sanitary services for the civilian population during emergencies, and the adequacy of medical, health and sanitary services in the armed forces. The survival of the United States can hinge on this action. Scientific knowledge has accelerated warfare to the point that a nation cannot wait until disaster is approaching to prepare for such horrible events. The responsibility, therefore, demands that the American Medical Association establish forthwith a permanent and authoritative body to deal with this problem.

The Committee recommends that the Board of Trustees of the American Medical Association be authorized by the House of Delegates to create and appoint a standing committee to be designated as the Council on National Emergency Medical Service.

IV. Finally, it is recommended that the present Committee on National Emergency Medical Service be discharged.

Respectfully submitted,

EDWARD L. BORTZ, Chairman.
HAROLD S. DIEHL.
PERRIN H. LONG.
HAROLD C. LUETH.
O. O. MILLER.
JAMES C. SARGENT.
V. C. TISDAL.

REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Dr. H. G. Weiskotten, Chairman, presented the report of the Council on Medical Education and Hospitals as printed in the Handbook, which was referred to the Reference Committee on Medical Education.

SUPPLEMENTARY REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Dr. H. G. Weiskotten, Chairman, also presented the following supplementary report, the first section of which was referred to the Reference Committee on General Medical Practice and the rest of the report to the Reference Committee on Medical Education:

I. Upholding Prestige of General Practitioners

Considerable thought has been given to devise ways of upholding the prestige of general practitioners so that they may be encouraged to provide the citizens of our country with the kind of medical care which they are peculiarly qualified to furnish and for which there promises to be continued need.

The establishment of a Section on the General Practice of Medicine by this House in 1945 was an important step forward. Interest in this section was at once apparent, as shown by a registration of 939 at the 1946 Scientific Assembly and by the attendance of these registrants at the various meetings. This House has also expressed its approval of the organization of sections on general practice in state and county medical societies.

In spite of this, certain hospitals have inaugurated as a matter of policy limitation of their staff appointments to physicians certified by specialty boards or holding membership in certain special medical societies. Such a policy is contrary to the principles of the Council and seems unsound. In publications which have dealt with hospital standards, the Council has expressed repeatedly the need for a hospital staff of high quality; it has never mentioned certification by a specialty board or membership in a special medical society as an important credential.

Certain institutions have assured for themselves the inclusion on their staffs of properly qualified general practitioners by the intramural establishment of "General Practice Sections." An excellent description of how such a section actually operated over a period of eight years in a 450 bed hospital appeared on pages 15 through 16 of the May 3, 1947 issue of THE JOURNAL. Reprints of this article will be distributed by the Council to every registered hospital in the United States.

On the whole, so much uncertainty appeared to exist in the minds of many boards of trustees of hospitals about the propriety of establishing such sections as to lead this House at its meeting in San Francisco a year ago to adopt a significant resolution. This was reported favorably by the Reference Committee on Medical Education and adopted by the House; part of this resolution is quoted:

> WHEREAS, Many hospitals have not established general practice sections in their visiting active staffs, and their governing heads are doubtful whether such action has the approval of the bodies which set up the rules and regulations for the approval of their hospitals for interns and residents; therefore be it
>
> *Resolved*, That hospitals should be encouraged to establish general practitioner services. Appointments to a general practice section shall be made by the hospital authorities on the merits and training of the physician. Such a general practice section shall not per se prevent approval of a hospital for the training of interns and for residencies. The criterion of whether a physician may be a member of a hospital staff should not be dependent on certification by the various specialty boards or membership in special societies.

Copies of this resolution have been sent to the American College of Surgeons, the American College of Physicians, the American Hospital Association, the Protestant Hospital Association, the Catholic Hospital Association and to each hospital registered by the Council.

To carry forward further the intent of the resolution, the following report was published by the Council in THE JOURNAL, page 95, in the May 3, 1947 issue:

"At the direction of the House of Delegates of the American Medical Association some years ago, the Council on Medical Education and Hospitals formulated standards for the establishment of American boards for the certification of specialists and for the conduct of hospital residencies providing training in the various special fields of medicine. The aim was to improve the quality of training at this level of medical education. The physician responsible for directing such hospital training should himself have had training and experience approximately equivalent to that required of certification applicants, whether or not he is actually certified. But it was never intended that staff appointments in hospitals generally, or even in hospitals approved for residencies, should be limited to board certified physicians, as is now the policy in some hospitals. Such policies, if practiced extensively, are detrimental to the health of the people and therefore to American medicine. Hospital staff appointments should depend on the qualifications of physicians to render proper care to hospitalized patients as judged by the professional staff of the hospital and not on certification or special society memberships.

"In this opinion the Council has the full concurrence of the Advisory Board for Medical Specialties, which represents all of the American Boards in the specialties. At the February 1947 meetings of the Advisory Board it was unanimously voted

to adopt as the sentiment and policy of the Advisory Board the recent resolution passed by the American Board of Surgery, which reads:

"'The American Board of Surgery is not concerned with measures that might gain special privileges or recognition for its certificants in the practice of surgery. It is neither the intent nor has it been the purpose of the Board of Surgery to define requirements for membership on the staffs of hospitals. The prime object of the Board is to pass judgment on the education and training of broadly competent and responsible surgeons—not who shall or shall not perform surgical operations. The Board specifically disclaims interest in or recognition of differential emoluments that may be based on certification.'

"Since February, several separate American boards in the various specialties have taken similar action. The Council on Medical Education and Hospitals of the American Medical Association is completely in accord with this principle."

The Council now asks authority to use still another lever to carry forward the intent of the resolution. It recommends that section 3, paragraph 6, of the "Essentials of a Registered Hospital" now reading "6. Staff sections, such as medicine, obstetrics and surgery, should be organized as may seem wise" be amended to read "6. Staff sections, such as medicine, obstetrics, surgery, general practice, etc., should be organized as may seem wise."

This amendment is proposed in the belief that even so small a change in wording of the Essentials may be of help in promoting the intent of the resolution adopted by this House a year ago.

The desirability of doing this is plain. The establishment of an American Board of General Practice is being discussed by the Section on the General Practice of Medicine, by the Council and by the Advisory Board for Medical Specialties. The wisdom of establishing such a specialty board at this particular time is debatable. Wider realization and greater use of the contributions which skilful general practitioners can bring to hospitals may make superfluous the need for their certification by a specialty board.

Mimeographed copies of this report are available for every member of the House.

II. Revision of Essentials of Approved Residencies and Fellowships

This document, which sets forth the regulations applying to hospitals offering advanced training to physicians, was originally approved by the House in 1928. Periodically, it has been revised. The present revision brings the document up to date. It is forty-three pages in length and would require an hour and a half to read.

In the light of discussions yesterday at the "Grass Roots" conference, the House would be interested in the following statement in the Revised Essentials regarding the staff of a residency hospital:

"There should be an organized staff of ethical, licensed physicians holding the degree of doctor of medicine from approved medical schools acceptable to the Council on Medical Education and Hospitals. The particular specialties in which residents are being trained should be represented on the staff by well qualified, experienced and proficient physicians, *whether or not they may be certified in a specialty or hold membership in special societies.*"

REPORT AND SUPPLEMENTARY REPORT OF COUNCIL ON MEDICAL SERVICE

Dr. E. J. McCormick, Chairman, presented the Report of the Council on Medical Service as printed in the Handbook, which was referred to the Reference Committee on Miscellaneous Business, except the portion relating to legislative matters, which was referred to the Reference Committee on Legislation and Public Relations.

Dr. McCormick also presented the following supplementary report of the Council, which was referred to the Reference Committee on Miscellaneous Business:

Important developments in the field of medical service have taken place since the completion of the Council's annual report. Several of these are of such moment as to require additional comment at this time.

United Mine Workers Health and Hospital Fund

In the annual report the Council gave a short résumé of the situation to date, made mention of the Boone survey and outlined briefly a possible plan of action.

Specific recommendations were withheld pending the release of the Coal Mines Administration's (Boone) survey. This survey and its findings have now been made public in a three hundred page report entitled "A Medical Survey of the Bituminous-Coal Industry." To provide the delegates with a summary of the survey, the Councils on Medical Service, Industrial Health and Medical Education and Hospitals have prepared a 6,000 word résumé of the principal points and the recommendations. This résumé appears in the June 7 issue of THE JOURNAL, copies of which are available to each delegate. While the résumé does not do justice to the excellence, the scope and the objectivity of the survey, it does present the highlights and conclusions in a form sufficiently condensed so as to enable every delegate to become acquainted with the survey.

The Council recommends to the House of Delegates:

1. That a statement be prepared congratulating Rear Admiral Joel T. Boone and his survey teams on the survey, its objective approach, its scope, and its unbiased conclusions and recommendations. (Copies to be sent to the Secretary of the Interior and the Coal Mines Administrator.)

2. That a statement be prepared for the United Mine Workers Union and the bituminous coal operators' associations noting their assistance to and cooperation with the survey teams; calling attention to the fact that here is an opportunity for labor, management and medicine to work together on a positive approach to the solution of the health problems of a specific segment of the population; pointing out the plan mentioned in the Council's annual report, and requesting that formal conferences be held with representatives of the American Medical Association (Councils on Medical Service, Industrial Health and Medical Education and Hospitals).

3. That other interested groups, such as the Association of Coal Mine Physicians, American Hospital Association, American Dental Association and American Nurses Association, be called together to discuss possible approaches to the health problems of the miners and to act jointly with the American Medical Association in conferences with both the mine workers' unions and the mine operators.

Veterans Administration Home Town Medical Care Program

Undoubtedly most of the delegates are aware of the Veterans Administration Home Town Medical Care Program. Under this program the veterans were to receive medical care for service connected disabilities from physicians of their own choice, physicians were to serve for fees agreed on through their state medical societies, and every effort was to be made to provide the veterans with the same medical care received by civilians. Up to the present time some thirty-eight state medical societies have worked out agreements with the Veterans Administration for the purpose of providing the veteran with the same care he would receive as a private patient. To this decentralized, free choice program the Veterans Administration agreed.

There are now indications that new factors have arisen that have resulted in the Veterans Administration altering its policy. It would seem now that its policy is to set up more and more clinics manned by Veterans Administration doctors and require veterans to go to such clinics where available. Further, the Veterans Administration has prepared a schedule of fees which, while supposedly an attempt to arrive at a standard nomenclature, does contain a maximum fee for each service and has all of the ear marks of a nationwide schedule of fees.

The Council recommends to the House of Delegates:

1. That the Council on Medical Service be authorized to set up a conference for the purposes of arriving at a definite policy with regard to the Veterans Administration Home Town Medical Care Program.

2. That representatives from each of the state medical societies and representatives of the Veterans Administration be invited to this conference to present their views, experiences and opinions.

3. That, following this conference, the Council on Medical Service in collaboration with the Board of Trustees and representatives selected by the state societies be authorized to meet with representatives of the Veterans Administration to effect solution of any existing problems.

American Cancer Society Program

At the December meeting of the House of Delegates the Council presented a report on the American Cancer Society Service Program and recommended its approval. Approval was voted by the House.

To acquaint the state and county medical societies with the service program and their position in developing a local program, the Council has prepared a News Letter giving a résumé of the various activities open to county societies under the service program. Experience is now accumulating and problems are developing. While under the service program the county medical society has full authority to approve or disapprove any or all activities, it has become evident that uniform policies with reference to certain parts of the program might be of assistance to the county societies. Such policies, of course, must be developed from the experiences of programs actually in operation.

With this in mind the Council recommends and is preparing a study of the extent and experience of the programs now in operation and will report its findings to the profession. If policy changes or additions seem necessary, they will be reported to the Board of Trustees.

Cash Sickness Benefits

A study of cash sickness benefits was authorized in July 1946 but was not referred to the Council until March 1947. The Council has inquired briefly into the status of disability insurance providing temporary cash benefits for time loss due to non-occupational disabilities. We find that there is much controversy concerning this type of insurance, particularly when it comes about as a result of either federal or state legislation. At the present time two of the states, Rhode Island and California, have adopted compulsory disability benefit laws. In general they follow the same pattern. They differ, however, in that Rhode Island sets up a monopolistic state fund for the purpose of supplying benefits, while the California law permits either the employer or a group of employees to establish a voluntary plan as a substitute for coverage under the state plan. Many defects seem to have become apparent in the Rhode Island program, and it seems to be the consensus that it provides only a negative lesson in that it shows certain features not desirable in a law but gives no experience to prove that even with these eliminated its operation would be satisfactory. The California plan has not provided sufficient experience to determine its worth.

The Council finds that some thirty-two "cash sickness" bills have been introduced this year in the legislatures of thirteen states. Twenty-two of these bills have failed to pass, one passed both houses but was vetoed by the governor, and nine are still under consideration.

The Council also points out that the action of Congress in amending the recent provision of the Railroad Retirement Act to provide disability benefits for railroad employees will likely serve to focus and intensify the interest of state legislators in compulsory disability benefit laws. There has, of course, been a rivalry between the state and federal governments in the field of unemployment compensation benefits, and a renewed drive for state legislation may well be expected. If this drive materializes the state medical societies will need aid in devising policies, and this will require a knowledge of developments under existing programs.

We must not forget that this type of compulsory program may well lead to expansion of social security legislation along the lines suggested by Senators Murray and Wagner and Representative Dingell. Therefore its benefits and defects must be reviewed in the light of principle as well as temporary accomplishment. The Council mentions this preliminary study of cash sickness benefits to call attention to its importance and to inform the delegates that a detailed study will be made so that the state medical societies will be in a position to meet possible future legislation.

Hospital Construction Act

The Council on Medical Service is watching the developments following the enactment of the Hospital Construction Act and urges all state associations to keep abreast of these developments.

The definition of health centers should be reviewed at this time by the House of Delegates. At the December meeting of the House of Delegates the Council was authorized to "prepare a suitable definition of a health center or of health centers of varying types." Dr. Dean F. Smiley, Consultant on Health and Physical Fitness of the Bureau of Health Education, has completed a study of health centers for the Council. A brief summary of the conclusions is available to members of the House of Delegates. The following summary of Dr. Smiley's report is referred to the House of Delegates without comment for its consideration:

Summary of Dr. Dean F. Smiley's Report

1. At least fourteen different functions have been assigned the health center since 1912.

2. Of these fourteen functions it is recommended that only five (communicable disease control efforts, sanitation, maternal-infant-child-hygiene measures, vital statistics and health education) be generally included under the title of public health center as that title is used in the Hospital Survey and Construction Act of 1946.

3. It is recommended that public health centers be established as needed (the Hospital Survey and Construction Act of 1946 definitely limits the number of such centers in thickly populated states to 1 per 30,000 people, in states having a population of less than 12 persons per square mile to 1 per 20,000 people) and in close proximity to hospitals and medical schools (if any) in base hospital service areas, intermediate hospital service areas and rural hospital service areas and that they be integral parts of base medical centers, district medical centers and community medical centers. It is, however, recommended that at every level the public health center be kept administratively independent.

4. Public health centers to serve as headquarters for county and multi-county public health units are much more urgently needed than are rural public health centers serving as extensions of county and multi-county public health units.

5. It is recommended that in rural communities of 4,000 to 18,000 in need of sick beds but not large enough to afford a 50 bed general hospital, "community clinics" of 10 to 40 beds be provided by hospital authorities rather than "public health and medical service centers" provided by public health authorities. However, administratively independent public health centers may to advantage be housed in the community hospital or community clinic.

6. In those rural communities where bed service is available from neighboring community hospitals and the urgent need is for facilities for public health and diagnostic facilities it is recommended that the public health center shall provide facilities not only for the traditional six point public health service but also for clinical laboratory service and limited x-ray service. Offices for the part time use of the practicing physicians of the community should also be included if the physicians so desire.

7. In the interests of economy and administrative efficiency it would appear generally wise to avoid combining medical service functions, hospitalization functions, welfare and social service functions or recreational functions with public health functions in the public health centers projected under the terms of the Hospital Survey and Construction Act of 1946. The public health center should, however, include facilities for meeting effectively any responsibility laid on the public health department by the local community.

Respectfully submitted,

E. J. McCORMICK, Chairman.
H. H. SHOULDERS.
ROGER I. LEE.
LOUIS H. BAUER.
ALFRED W. ADSON.
WALTER B. MARTIN.
THOMAS A. McGOLDRICK.
THOMAS R. McVAY.
RAYMOND L. ZECH.
GEORGE F. LULL.
THOMAS A. HENDRICKS, Secretary.

ADDRESS OF REAR ADMIRAL JOEL T. BOONE

During the presentation of the supplementary report, Dr. McCormick requested and received approval of the House to hear the following address of Rear Admiral Joel T. Boone:

Mr. Speaker, Dr. McCormick, Members of the House of Delegates of the American Medical Association: I haven't had an opportunity to prepare, other than to jot down a few thoughts last night, what I might say if you were gracious enough, having been forewarned, to invite me to appear before you.

For the second time in six months I have been highly honored by this very distinguished body by invitations to address it. I am inexpressibly grateful for your tribute to an agent of medicine who has tried with a serious conscientiousness to apply his professional talents to an ailing patient, the bituminous coal industry. Furthermore, he has observed the omissions of public health (that does not mean the United States Public Health Service, I want to say) and the failure to apply preventive medicine and industrial medicine. Also he regrets he has seen medicine practiced to reflect no credit on the healing art, and very gratifyingly he has seen wonderful examples of the practice of medicine in certain areas of the bituminous coal mining area.

Happily, all the members in the family of coal were not ill, as some may have claimed. Owing to adherence to health concepts and practices, some of the members of that family were robust, vigorous and examples of a high degree of healthfulness.

Yesterday, Sunday, fittingly this convention started off with a religious note sounded in which a trio of exhorting voices were raised to inspire men. These men were worthy representatives of Almighty God. Dr. Hutchison, Rabbi Liebman and Monsignor Sheen elevated men's minds and souls to determine consecration to greater service to mankind. Each of these eloquent speakers knit the practice of medicine to the pattern of religion.

Would that I possessed a fraction of their power to bring to you a message from the group who made the medical survey of the bituminous coal industry as the director of that group. Of that survey I wish to say that the results obtained are those of a team and not of an individual. Each member of the group made his contribution.

As the appointed head of the mission, I approached my job as the physician. The survey was conceived and pursued as a medical problem, and never once did I lose sight of the fact that I was in my chosen role as the common practicing physician. In approaching the problem, I knew that I first had to make a diagnosis of the malady before I could possibly think in terms of a remedy.

In the preparation of our report we sought not to popularize ourselves by avoiding criticism. We had a responsibility and a goal of producing and presenting factual data and, in doing so, determined to be impartial. We did not straddle. As a physician, I knew that the diagnosis, the symptom complex, must be relieved.

Cooperation was attained quite readily, because I said to management and I said to labor "You may fight and row over wages and hours, but most certainly, gentlemen, health is a common concern."

We are indebted to management and labor and, as a representative of the medical profession, I feel very keenly our indebtedness as well to the state, federal and local authorities for their assistance and demonstrated cooperation. We could not have had more cooperation than we had, and we could not have attained the results we did without it.

Of course, we met with discouragement many times, and there were periods when I must say frankly that I felt frustrated. The challenge to success was omnipresent. As naval officers we were given a unique mission, a broad mission. We were definitely on the spot. Some of the members of this Association in Chicago at the headquarters said to me very frankly last summer and last fall that they were very gratified they did not have the responsibility.

For the first time in history, a national survey of a basic industry under governmental auspices was ordered to be conducted, and the Navy was given the assignment. The reaction has been beyond one's fondest expectations. It is gratifying, I assure you. But the disclosures present great challenges which must be embraced and successfully met. I have confidence that there is adequate leadership in industry—and I apply it not to the coal industry but to industry as a whole—and in my own profession, to overcome all the obstacles to the attainment of improved health for those individuals who contribute to the nation's welfare in the production of coal. With the coal industry as a means to an end, through it all industry, mechanical and agrarian, may be benefited and the health of the nation as a whole thereby raised to a higher level than we tolerate too complacently today.

Saturday I was asked to contribute to your Council's deliberations as to what to do, and I felt quite inadequate in a few moments to advise them. I would be very happy to cover the subject sometime as to my own ideas, if they have any value whatsoever, based on the experience in this survey. Among those recommendations I would like this one to stand out in italics, if possible. It appears under the section on Medical Care and Hospitalization:

"That an outstanding and recognized leader of the civilian medical profession be appointed a member of any trusteeship established, the purpose of which is for the medical care and hospitalization of miners and their dependents."

The other day, by a strange coincidence, I was invited by the president of the United Mine Workers of America to have luncheon with him. I was a bit apprehensive when I accepted, although I wanted to have a chance to talk to him to see how he felt about the report, because I thought there might be others present and it wouldn't be the relationship that we have as a physician with a patient alone. He personifies, in a way at least, the part of the patient.

After he had congratulated me much more fully than I expected, I said "I am surprised, Mr. Lewis, since I castigated your organization as I did."

He said to me "I don't mind what you said about our organization. You are one group that we felt we could have confidence in, that you would be factual, and I am satisfied because you have exposed the situation to public gaze."

Then I put up some challenges to him. I cannot repeat them all, but I would like to say to this group that I said to him "If you are going into the field of medicine, my advice to you, for the first time that you do, is to acquire the services and to get the advice of organized medicine, to get one of the most outstanding leaders in the profession of medicine to be your adviser and then pay him comparably to what you pay your legal talent. I understand you pay them as high as any other organization in the United States."

I might say also that after I had thanked him for the luncheon in a note later I said to him "You have gained great points for labor in wages and hours, but at your age in life, as you are coming to the end some years from now, you can overcome a lot of opposition to you and feeling toward you, and you could perform not only a great service to your union but to your country, if you gave yourself to the promotion of health. Until you champion preemployment, preplacement examinations, to which the union has shown opposition, you are not assuring yourself of the stability, mental competence and physical stamina of the individual who operates the machine. Mining has become very highly mechanized now, and you are failing in a great responsibility."

I said "If you come out and praise preplacement and preemployment examinations, all the opposition will be dissipated."

He said "I will do it," and I hope he will.

On Sunday I was congratulated several times, and one of my friends in this group was very fulsome in his congratulation. Then he said "I wonder whether anything will be done about it" and that gave me a thought. The profession of medicine can be a determining and a compelling force that there will be something done about it. Medicine is the guardian of the health of this nation, and we can't afford to permit known and disclosed serious and dangerous factors opposing health to continue to exist without something being done about it.

The other day, among many articles I have seen in magazines referring to this report of ours, I read one in the *Saturday Review of Literature* for May 10, and I understand that it is the first time this fine magazine has ever given any recognition to a governmental report. The writer was Mr. Starr, formerly

on General MacArthur's staff, now in civil life. Among other things, he said:

"Public opinion will back this report if its contents are known and popularized by radio, play and movie. The presumption of effective democracy is that human beings can be persuaded. The minority can convince the majority if they have the facts on their side, but our powers of persuasion are not yet equal to the size of the case for improving the miner's lot. So far, the battle sectors of health and housing have not been manned in effective strength. This report is a valuable munition. Its criticisms and constructive recommendations are immediately practicable."

Gentlemen, in conclusion, if I may repeat from our report, the last paragraph reads:

"The report of the medical survey of the bituminous coal mine industry presents convincing evidence that the serious problem of improving the health of the miner, assuring him of better living conditions, enabling him to provide for his family through his own initiative and efforts and making him a more responsive and responsible citizen of his community, is a valuable problem if labor, management and the medical profession cooperate and work conjointly with a united interest and sincere devotion to a common cause: the good of large numbers of people in a basic industry. Health is a common concern of all groups. Working together for its promotion can help immeasurably to weld the bonds of human interrelationship."

Dr. McCormick expressed the desire and thought of the Council on Medical Service that Admiral Boone, members of the House of Delegates and physicians generally interested in this report appear before the reference committee and make any additional suggestions which they may have to make.

REPORT OF JOINT COMMITTEE FOR THE COORDINATION OF MEDICAL ACTIVITIES

Dr. Ernest E. Irons, Chairman, presented the following report of the Joint Committee for the Coordination of Medical Activities, which was referred to the Reference Committee on Miscellaneous Business:

During the past year the Joint Committee for the Coordination of Medical Activities, formerly the Committee on Postwar Medical Service, has continued its discussions in well attended meetings. It is well understood by all members of the Joint Committee and by the organizations they represent that its work is advisory only. However, through its free and open discussions of many diverse problems confronting American medicine, the Joint Committee exercises a considerable influence toward the accomplishment of desirable objectives.

The Joint Committee is made up of officially appointed committees of the American Medical Association, the American College of Surgeons and the American College of Physicians and of liaison members representing the following organizations:

Advisory Board for Medical Specialties.
American Dental Association.
American Hospital Association.
American Pharmaceutical Association.
American Red Cross.
Association of American Medical Colleges.
Catholic Hospital Association.
Federation of State Medical Boards.
Federal Security Agency.
Office of the Surgeon General, United States Army.
Bureau of Medicine and Surgery, United States Navy.
United States Public Health Service.
Veterans Administration.

The American Red Cross and the American Pharmaceutical Association were added to the liaison membership during the past year. Until the Procurement and Assignment Service and the War Manpower Commission were dissolved after the war, those government agencies also were represented on the Committee.

Since the report of the Committee was made to the House of Delegates in San Francisco, various matters have been discussed. Following a discussion regarding the postwar shift of the physician population, particularly with respect to rural areas, the American Medical Association's Bureau of Information undertook a survey to determine the conditions and distribution of medical care in the rural areas of the country. The initial report on this survey appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for May 17, 1947.

Important subcommittees of the Joint Committee have been active and have made informative reports which have been published in THE JOURNAL from time to time as a part of the minutes of meetings of the Joint Committee. Among these have been reports of the Subcommittee on Surplus Medical and Hospital Supplies, and on Graduate Education for Physician Veterans. The latter committee is still at work and has had frequent and cordial contact with officials of the Veterans Administration. Reports have been presented on licensure, mostly with respect to the licensure of physician veterans. The problem of licensure of foreign graduates also has been considered. A subcommittee on National Legislation for a Department of Health has been studying the various bills introduced into the Eightieth Congress which would establish in one manner or another a department or division of health in the federal government.

At its meeting in February 1947 the Joint Committee heard a statement from the American Red Cross concerning its proposed blood bank program. The Joint Committee found itself in agreement with the Board of Trustees of the American Medical Association, which endorsed the program in principle on the basis of community need and administration and of agreement by the local county medical society concerned.

A recent report had to do with the shortage of nursing personnel and with a plan sponsored by the American Hospital Association in cooperation with the National Nursing Council whereby a nurse recruitment program may be instituted.

A subcommittee on the Needs and Better Recognition of the General Practitioner has done considerable exploratory work. At the most recent meeting, April 26, 1947, this committee presented a report and recommendations which will appear shortly in THE JOURNAL.

The Joint Committee continues to be a forum in which the problems of American medicine can be discussed.

Respectfully submitted for the Committee,

ERNEST E. IRONS, Chairman.

REPORT AND SUPPLEMENTARY REPORT OF COMMITTEE ON RURAL MEDICAL SERVICE

Dr. F. S. Crockett, Chairman, presented the report of the Committee as contained in the Handbook and the following supplementary report, which were referred to the Reference Committee on Hygiene and Public Health:

On page 116 of the Handbook we reported the second annual conference with the major farm groups. Acting on the suggestions made at that time, your committee asked and received authority from the Board of Trustees to invite the American Farm Bureau Federation, the National Grange, the Farmers Educational and Cooperative Union and the National Cooperative Milk Producers Federation to appoint members to act in an advisory capacity to this Committee.

On May 24 the Committee met with its advisers to explore ways and means of getting action on the community or trade area basis. It was agreed that the formation of health councils should be undertaken on the state level and their development on the local level at the earliest possible moment. Their value in organizing sentiment for better health standards and initiating necessary measures to secure them cannot be duplicated by any outside organization.

Health councils requiring broad community participation would open the way for closer cooperation between the profession, farm and other groups and make possible any other desirable activity, such as prepaid medical and hospital plans, construction of hospitals or diagnostic centers, the bringing and holding of professional personnel, and so forth. It was the opinion of our advisory members that the organized farm groups would welcome the initiation of health councils and other health activities by the medical profession.

It was further agreed that news releases containing material pertaining to rural health should be sent from time to time to

the farm organizations represented on this committee, this material to be used at their discretion in their publications to stimulate interest in rural community health problems.

Discussion of medical cooperatives developed some interesting points of view. It seems the action of the House of Delegates last December, asking the Board of Trustees to formulate minimum standards necessary for good medical care, such as might be set up by consumer groups for example, medical cooperatives, would be welcome. Our advisory members could not speak authoritatively for the cooperatives but in their opinion such a move by our profession might go a long way in creating a more friendly attitude.

In the opinion of all our advisory members, the annual conference has been successful in convincing our farm friends of our interest in their health problems and should be continued. They will meet with us next October in planning the next conference.

Respectfully submitted,

F. S. Crockett, Chairman.
E. J. McCormick.
Victor Johnson.
C. W. Roberts.
L. W. Larson.
Fred A. Humphrey.
Carll S. Mundy.
N. H. Gardner.
J. Paul Jones.
H. B. Mulholland.
Allen T. Stewart.
James F. Doughty.
George F. Lull.

REPORT OF COMMITTEE TO STUDY REVISION OF CONSTITUTION AND BY-LAWS

Dr. F. F. Borzell, Chairman, presented to the House of Delegates the proposed revised Constitution and By-Laws, a copy of which had been sent prior to the session to each delegate, with the statement that some minor changes had been inserted to which he would call attention. He stated that under the present Constitution and By-Laws the proposed revised Constitution would have to lie over until next year and began to indicate the modifications in the proposed revised By-Laws.

After discussion, it was moved by Dr. T. K. Gruber, Michigan, seconded by Dr. Thomas S. Cullen, Maryland, and carried that this be read by title except such changes as Dr. Borzell desired to offer. Dr. Borzell began reading amendments to the revision but the delegates did not have copies with them and Dr. Borzell moved that the order of business be changed so as to include this report just previous to the beginning of the reports of the reference committees the next day. The motion was seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried.

REPORT OF COMMITTEE ON MILITARY RANK

Dr. B. R. Kirklin, Chairman, presented the following report, which was referred to the Reference Committee on Miscellaneous Business:

You have heard from the Surgeons General of the Army and Navy that bills are now before Congress which provide for increased rank and pay for the medical officers of the two services. They also stated that these bills have the blessing of the War and Navy departments.

Therefore, since the purposes for which this Committee was created have been attained, as far as is possible at this time, the members of your committee recommend that the committee be discharged.

Respectfully submitted,

B. R. Kirklin, Chairman.
Hugh P. Smith.
Grover C. Penberthy.
Elmer Hess.

NEW BUSINESS

Resolution on Treatment of Plastics for X-Ray Visualization

Dr. Holman Taylor, Texas, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, There are about 15,000,000 children who play with toys that are made of plastic, rubber and other material which does not show in either x-ray pictures or the fluoroscope, and for which reason they are a distinct hazard when swallowed; and

Whereas, Dr. B. H. Vaughan of Port Arthur, Texas, has started a campaign to have a federal law passed to require manufacturers of such toys to incorporate some harmless substance into the material from which they are made that will make them visible in x-ray pictures; therefore be it

Resolved, That the State Medical Association of Texas go on record as endorsing the movement, and that our delegates to the American Medical Association be urged to introduce this resolution in the House of Delegates of that organization at its next session.

Resolution on Need of a Greater Income for Medical Schools

Dr. Robert E. Schlueter, Missouri, presented the following resolution, which was referred to the Reference Committee on Medical Education:

Whereas, Some medical schools are in need of a greater income to maintain their present high standards of instruction and scientific medical research; and

Whereas, It is actually impossible to increase the tuition fees sufficiently to secure the required funds; and

Whereas, Certain schools of medicine are considering the organization of clinics for the practice of medicine and surgery on a profit making basis in order to attain this end; and

Whereas, Such clinics would be in direct competition with the graduates of the medical schools involved as well as with all other practicing doctors of medicine; therefore be it

Resolved, That the House of Delegates of the American Medical Association be requested to instruct the Council on Medical Education and Hospitals to study this problem and find the proper means for combating this critical situation, which might even require an appeal to existing foundations or the creation of a new national voluntary foundation for the specific purpose of subsidizing approved medical schools which require financial assistance.

Resolutions on Hospitals Entering Into the Practice of Medicine

Dr. Walter E. Vest, West Virginia, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, There is a growing tendency among hospitals to enter into and encroach on the practice of medicine, especially in the fields of pathology, clinical laboratory work, anesthesia and diagnostic roentgenology; and

Whereas, In all the states the practice of medicine is legally a franchise granted by the state to an individual after rigid technical training and due examination; and

Whereas, The practice of medicine involves an individual personal service which in the nature of things cannot be performed by an organization or corporation; and

Whereas, In an increasing number of hospitals, lay boards have gradually taken over the policies of the hospitals and have dictated to the medical staff not only problems of management but those of nursing and medical care as well; therefore be it

Resolved, By the House of Delegates of the West Virginia State Medical Association, that we go on record as condemning this tendency, especially as to setting and collection of fees by hospitals; and be it further

Resolved, that our delegates to the American Medical Association be instructed to present these resolutions to the House of Delegates of the American Medical Association at the coming session in Atlantic City with the request that the Council on Medical Education and Hospitals be instructed to include in the standards for hospital recognition these basic principles:

1. That all fees for medical service be set by and collected for by duly licensed doctors of medicine; and

2. That all policies and practices involving treatment, nursing and medical service be approved by the medical staff before being put into effect.

Resolution on Establishment of a Section on Diseases of the Chest

Dr. Walter E. Vest, West Virginia, presented the following resolution, which was referred to the Reference Committee on Sections and Section Work:

Whereas, There are approximately 2,500 physicians and surgeons in the United States engaged in the practice of diseases of the chest; and

Whereas, This specialty has made notable progress in advancing the knowledge of diseases of the chest during the past ten years; and

Whereas, A total of 388 chest specialists registered at the annual session of the American Medical Association held at San Francisco, July 1-5, 1946; and

Whereas, The registration exceeded this total in but four of the seventeen sections of the American Medical Association, i. e. Internal Medicine, Surgery, General and Abdominal, Obstetrics and Gynecology, and the General Practice of Medicine; and

Whereas, Diseases of the chest constitute a very large and important segment of the entire volume of medical practice; therefore be it

Resolved, By the House of Delegates of the West Virginia State Medical Association, that our delegates to the American Medical Association be instructed to present this resolution in the House of Delegates at the coming session in Atlantic City, with the request that a Section on Diseases of the Chest be established in the Scientific Assembly of the American Medical Association.

Resolutions on Rebates

Dr. William Weston, Section on Pediatrics, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Complaints have been made from time to time by individual members of the American Medical Association and by constituent associations of the existing practice of accepting rebates by members, and especially has this practice been emphasized in regard to oculists and opticians in which it has been charged that many oculists conspire with opticians by accepting rebates on prescriptions for glasses; and

WHEREAS, The knowledge of this practice has become so widespread that it has been the subject of criticism by the lay press and by politicians unfriendly to the American Medical Association; and

WHEREAS, The American Medical Association through the House of Delegates has officially condemned all rebate practices in whatever shape or form they may exist and has distinctly expressed the opinion that such practices are in violation of the ethics of the American Medical Association; therefore be it

Resolved, That the House of Delegates reiterate its condemnation of this practice by any member accepting rebates; and be it

Resolved, That the Secretary of the American Medical Association communicate this action to the various county societies forming the constituent associations and request that members accepting rebates be removed from the role of membership, unless such member or members promise to desist from such practice in the future and that the secretaries of the various county societies communicate their action in this matter to the Secretary of the American Medical Association.

WILLIAM WESTON,
DAVID SCANNELL,
O. H. WEAVER,
J. B. LUKINS,
E. S. HAMILTON,
ROBERT HAYES,
FLOYD S. WINSLOW,
B. E. PICKETT SR.
GEORGE W. KOSMAK,
K. S. J. HOHLEN,
HOLMAN TAYLOR,
ELMER HESS,
H. B. EVERETT,
W. A. COVENTRY,
OSCAR O. MILLER,
RALPH TODD,
J. P. PRATT,
J. C. SARGENT,
WALTER E. VEST,
WINGATE M. JOHNSON,
J. Q. GRAVES,
LLOYD NOLAND,
VAL F. FUCHS,
JAMES R. MCVAY,
J. SMITH,
THOMAS S. CULLEN,
LOUIS A. BUIE,

Resolution on Indoctrinating Medical Students with Philosophy and Ethics of Profession

Dr. T. K. Lewis, New Jersey, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, The new social philosophy being evolved in this country has confronted organized medicine with many vital and perplexing problems; and

WHEREAS, The burden of meeting these problems and at the same time retaining those attributes which experience has taught are vital in maintaining the standards of medical care is now being borne almost entirely by the more mature members of our profession; and

WHEREAS, It is recognized that the doctor of tomorrow, who is the student of today, will be the future standard bearer of our profession; and

WHEREAS, There is a formative period of six to eight years wherein as student and intern he receives his scientific training and lays the foundation for his professional philosophy; and

WHEREAS, We believe that, to prepare properly the physician to carry on the work now being performed by organized medicine, his curriculum should be supplemented by a program that would indoctrinate him with the philosophy and ethics of our organization, which program should emphasize the relationship to and the responsibility of the doctor in meeting the social problems now confronting our profession; therefore be it

Resolved, That the American Medical Association inaugurate a program which will systematically contact every medical student in each approved medical school, also those recently graduated now serving internship or other postgraduate training, said program being designed to supplement his scientific training with such facts and information as will fulfil the desires incorporated in this resolution. Preference should be given to a brief recognized course of instruction within the curriculum of each approved medical school, or by any other practical means deemed proper by the American Medical Association.

Resolution on National Health Policy

Dr. T. K. Lewis, New Jersey, presented the following resolution, which was referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, It is possible and likely that some form of national health policy will come into being; and

WHEREAS, The American Medical Association recognizes the need of supplying the professional and administrative leadership at the local level necessary to furnish public health services and adequate medical care to the people of the nation; therefore be it

Resolved, That the following principles be promulgated under the leadership of the Board of Trustees, or appropriate Council:

1. Each component society will appoint the necessary committees to study the public health and medical care problems concerned, to supervise projects relevant to these problems.
2. Each component society pledges itself to maintain a high standard of professional skills among the medical personnel assigned to these projects, and to supervise such activities with a view toward maintaining high scientific standards and preventing personal exploitation.
3. Each component society invites and welcomes the active participation in its scientific programs by the qualified medical and nonmedical personnel of the appropriate health and welfare agencies.
4. The health and welfare agencies will render genuine cooperation with each component society in the implementation of these projects.
5. The health and welfare agencies will select their part time medical personnel from lists furnished by, or with the approval of, each component society.
6. The health and welfare agencies will clear through each component society any grievances concerning medical personnel.
7. The health and welfare agencies will protect the private practitioner and family doctor by discouraging treatment in preventive clinics and by returning to the family doctor any cases not suitable for examination or care at the health or welfare agency.
8. The health and welfare agencies will not profit financially by the labors of any medical personnel working there.
9. Each component society and the health and welfare agencies will seek the cooperation of dental, nursing and pharmaceutical organizations in a program fashioned to accord with these principles.
10. Each component society and the health and welfare agencies will maintain continuing liaison with each other to implement these principles.

Resolutions on Medical Care of Veterans

Dr. James R. McVay, Missouri, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The Congress of the United States enacted in 1946 Public Law No. 293, which provided for the medical care of veterans and authorized the employment of professional personnel by the director of the Veterans Administration; and

WHEREAS, The provisions of Public Law No. 293 give permission to the director of the Veterans Administration to employ personnel whose qualifications for administering medical care are limited because of educational attainments; and

WHEREAS, The medical personnel accepted for commission in the Medical Corps of the United States Army and the United States Navy was limited to those who were qualified as Doctors of Medicine; therefore be it

Resolved, By the House of Delegates of the Missouri State Medical Association, assembled in the eighty-ninth annual session, that it disapproves of the employment of any person who claims to be educated in the healing arts for the medical care of veterans eligible to the benefits as provided by the acts of Congress for the medical care of veterans when said person was not acceptable to the Medical Corps of the United States Army and the United States Navy for commission as a medical officer; and be it further

Resolved, That the Sections of Public Law No. 293 giving such permission should be repealed; and be it further

Resolved, That these resolutions be presented by the delegates from the Missouri State Medical Association to the House of Delegates of the American Medical Association at the next annual session of the House of Delegates of the American Medical Association.

Resolutions on Teaching of Medical Economics in Medical Schools

Dr. James R. Reuling, New York, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

The House of Delegates of the Medical Society of the State of New York at its annual meeting on May 7, 1947 directed that the following resolutions be introduced:

WHEREAS, The training of medical students is to a great extent under the direction of full time teachers, many of whom have not been engaged in the private practice of medicine and may not be acquainted with the viewpoint of the practitioner of medicine on socioeconomic problems; and

WHEREAS, At a previous meeting of the House of Delegates of the American Medical Association, it was requested by the House that courses in economics be established in medical schools as soon as feasible; and

WHEREAS, Such program was delayed by the onset of war; therefore be it

Resolved, That the American Medical Association through proper channels take active steps to insure the presentation to all medical students in the United States of the viewpoint of the practitioner of medicine on socioeconomic problems; and be it further

Resolved, That the American Medical Association assist in the preparation of material and the securing of speakers, or in any other way that is deemed necessary to further the institution of such a program at the earliest possible date.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. James Q. Graves, Louisiana, and carried, the House went into Executive Session to listen to a special report.

The House reconsidered a motion admitting officers and executive secretaries of state medical societies into Executive Session.

On motion of Dr. E. Vincent Askey, California, seconded by Dr. E. S. Hamilton, Illinois, and carried, only delegates and officers of the American Medical Association were allowed in Executive Session.

The House convened in Executive Session at 5:15 p. m. and reconvened in Regular Session at 6:15 p. m.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by several, the House recessed at 6:15 p. m. to reconvene at 9 a. m., Tuesday, June 10.

(To be continued)

Washington Letter

(From a Special Correspondent)

June 18, 1947.

Senate Committee Approves Health, Education and Security Department

The Fulbright-Taft bill to create a Department of Health, Education and Security in the federal government, headed by secretary of cabinet rank, was approved by the Senate Expenditures Committee. The bill calls for appointment of three undersecretaries to head up the three principal divisions of the department. The department's duty would be "to promote the general welfare of the people of the United States by aiding and fostering progress throughout the nation in the fields of health, education and public welfare and related services, contributing to individual, family and community well being." No authority would be given in the legislation to any federal official to exercise control over the operation of any state or local health, education or welfare agency. The new department would include the Federal Security Agency and its constituent units the U. S. Public Health Service, the Food and Drug Administration, the U. S. Office of Education, the Social Security Administration and several lesser agencies. Spokesman for the California Medical Association Dr. Lowell S. Goin expressed agreement with general principles of the bill but took issue with a number of provisions. He pointed out that there was confusion in the words "health" and "medical care," explaining "It seems to me that the federal government, if sincerely interested in health and welfare of the people, might well turn its attention to some of these other problems rather than attacking the minor fraction of the problem called medical care."

Commission Advocates Filling "Gaps in Medical Care"

President Truman's Advisory Commission on Universal Training advocated compulsory training of all young men as part of a security program to cost billions of dollars. Proposed was a $1,750,000,000 a year universal training plan for 18 year olds. Rapid demobilization of the armed forces was criticized, and it was pointed out that "our military forces" are now a hollow shell. Called for in the overall security program was "a strong, healthy, educated population." The commission "strongly urged passage of legislation to fill the gaps in medical care and education benefits for the entire nation as quickly as possible."

Fines in Artificial Limb Industry

Associated Justice Alexander Holtzoff assessed fines from $100 to $1,000 on five corporations and three individuals in the artificial limb industry who pleaded nolo contendere, or no contest, to charges aired in a District of Columbia court. All the defendants had previously been found guilty on the same charge by Federal Judge Bower Braddus of Oklahoma City in the same court on May 14, 1946, with a subsequent appeal upheld in the U. S. Court of Appeals. Fines were imposed as follows: J. E. Hanger Company of Washington, D. C., $500; subsidiaries of the Hanger Company in Illinois, $500; Texas, $500; Indiana, $250, and Missouri, $500; McCarthy Hanger, president of the Missouri firm, $1,000; Joseph F. Branham, vice president of the Illinois firm, $500, and Hugh H. Hanger, said to own a separate business in Philadelphia, $100.

Helps to Coordinate Eyesight Saving Plans

The Federal Security Agency's Office of Vocational Rehabilitation announced that federal and private efforts to aid persons who have poor eyesight but are not totally blind will be coordinated through the National Society for the Prevention of Blindness. Similar cooperative agreements have been made with eighteen other organizations interested in specific problems of physically handicapped persons.

Washington Hospitals Plan to Moderize

Should the bill introduced last week to authorize approximately 15 million dollars for modernization of the capital's hospitals be enacted, most Washington private hospitals are reported to be planning remodeling or expansion. Representative Mary T. Norton, Democrat of New Jersey, introduced the measure as an amendment to the 1946 Washington Hospital Center Act.

General Bradley Praises Work of Volunteers

Veterans Administrator Omar Bradley informed his agency's Voluntary Service National Advisory Committee that the work of volunteers is making it possible for World War II veterans to leave hospitals in better mental and physical condition than did World War I veterans. He said that the work of almost three hundred different voluntary service groups is "helping the patients in our veterans' hospitals toward an early recovery."

Richard F. Allen Slated to Head Foreign Relief Program

Legislators have disclosed that President Truman favors the appointment of Richard F. Allen, a Red Cross vice chairman, as head of the general foreign relief program which Congress has been giving final attention. The director of the project would be in charge of distributing medicine, food, clothing, fuel and other necessities to five European countries and to China.

Cancer Council Recommends Forty-Eight Grants

The National Advisory Cancer Council has recommended forty-eight cancer research grants to laboratories, hospitals and universities throughout the country, totaling $700,000 in value. Georgetown University, Warwick Memorial Clinic and Dr. Walter R. Kirner of the National Research Council, all in Washington, D. C., were recommended for $70,000 of the total. The grants are dependent on 1948 Congressional appropriations to the U. S. Public Health Service.

Homes for Paralyzed Veterans

The Senate Banking Committee heard witnesses testify in favor of legislation, opposed by the Veterans Administration, to provide specially built homes for paralyzed war veterans. Thirteen paraplegics were wheeled into the hearing room. Mrs. Robert Moss, wife of a crippled patient at Halloran Hospital, Staten Island, N. Y., pleaded for the special homes and declared that in standard homes paraplegics are "complete invalids." Another witness said the only alternative is "hospitalization for life." General Bradley, Veterans Administrator, told the committee in a letter that "if an exception were made in the case of paraplegic veterans . . . it would be difficult to deny similar consideration to other seriously disabled groups, such as blinded veterans, those suffering from serious heart and lung conditions, and many others."

Dr. Ross T. McIntire Heads District Health Council

Dr. Ross T. McIntire, former U. S. Navy Surgeon General and White House physician, has been named chairman of the Washington Metropolitan Health Council, succeeding Dr. Herbert P. Ramsey, chairman from the council's inception in 1944. Dr. McIntire promised to make the council a "real force in the metropolitan area." Howard Strong, former head of the Health Division, U. S. Chamber of Commerce, was named vice chairman. Appointments must be approved by the Council of Social Agencies.

Arlington Hospital Site

A Norfolk, Va., court order has been signed giving possession of the 25 acre Nevius Tract in Arlington County to the Veterans Administration as the site for its new Washington area veterans hospital.

Coming Medical Meetings

Alaska Territorial Medical Association, Fairbanks, July 28-30. Dr. William J. Blanton, Juneau, Secretary.

American Orthopedic Association, Hot Springs, Va., The Homestead, June 27-30. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Physiotherapy Association, Pacific Grove, Calif., July 6-12. Miss Mildred Elson, 1790 Broadway, New York 19, Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22-24. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B. Souster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Carsway, 115 N. 28th St., Billings, Secretary.

Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

GOVERNMENT SERVICES

ARMY

ARMY AWARDS AND COMMENDATIONS

Major General Norman T. Kirk

The United States of America Typhus Commission Medal has been awarded to Major Gen. Norman T. Kirk, Surgeon General of the Army, whose services were thus summed up in the citation: He rendered exceptionally meritorious service in connection with the work of the United States of America Typhus Commission from June 1, 1943 to June 30, 1946. Thoroughly comprehending the problems of typhus on a worldwide scale, he contributed in every way possible through his advice, special knowledge, high position and command of facilities to the effective operation of the commission in the United States and in all theaters overseas. By fostering investigations of rickettsial diseases and their control, General Kirk aided directly in achieving the new victory over typhus. Dr. Kirk graduated from the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1910 and entered the military service May 22, 1913.

Major General Paul R. Hawley

The awarding of the Distinguished Service Medal to Major Gen. Paul R. Hawley, medical director of the Veterans Administration, was accompanied with a citation calling attention to his exceptionally meritorious service as chief surgeon, communications zone, European Theater of Operations, from June 1944 to May 1945. His primary responsibility for the health of more than three million American military personnel was made doubly heavy by the care his command exercised over certain civilian populations, prisoners of war and Italian service units. He established a medical service that reached far forward to the battle lines to give superior attention to the wounded and rapidly evacuate them to areas where they could be speedily treated by completely modern methods. Through his unprecedented system it was possible to set a record of saving the lives of 96 out of every hundred wounded soldiers. The supervision of 318 hospitals and convalescent units, the evacuation of more than half a million casualties from the army areas and of nearly 200,000 to the United States was a task requiring the utmost coordination and superior management. Through his extensive professional knowledge and the aggressive, unremitting manner in which he applied it, General Hawley provided outstanding medical service to the armed forces in the European theater and made an important contribution to the war effort. Dr. Hawley graduated from the University of Cincinnati School of Medicine in 1914 and entered the military service in 1916.

Brigadier General Edward A. Noyes

The Legion of Merit has been awarded to Brig. Gen. Edward A. Noyes, M. C., U. S. Army, who, while serving as service command surgeon, Fifth Service Command, from July 1944 to December 1945, initiated exceptional medical practices and procedures at a time when casualties from overseas were overloading all hospitals and the patient personnel at the Convalescent Hospital increased fourfold in four months. He developed facilities for recreation, physical reconditioning and vocational training, instituted special treatment for neuropsychiatric and improved handling of paralyzed patients, and inaugurated at Fort Knox Rehabilitation Center a successful group therapy treatment program. Dr. Noyes graduated from the University of Oregon in 1913 and entered the military service in September 1915.

Colonel Wilford F. Hall

The Oak Leaf Cluster to the Legion of Merit has been awarded to Col. Wilford F. Hall, M. C., U. S. Army, who as surgeon of the Army Air Forces Personnel Distribution Command from July 1944 to May 1945 administered the physical reconditioning and educational programs in the Air Forces convalescent hospitals. By diligent application of his exceptional professional knowledge and superior judgment he played a leading role in rehabilitating combat veterans and making many of them available to the continental air forces and commands where they were vitally needed as replacements. Dr. Hall graduated from Washington University School of Medicine, St. Louis, in 1928 and entered military service in July 1928.

Lieutenant Colonel Everett W. Ryan

The Legion of Merit has been awarded to Lieut. Col. Everett W. Ryan, M. C., A. U. S., of Charleston, Miss., for exceptionally meritorious conduct in the performance of outstanding service as chief of preventive medicine section and medical inspector for the United States Army forces in the South Atlantic from September 1942 to September 1945. His superior judgment, long-range planning and inspired leadership are credited in the citation for succeeding in bringing about a most successful preventive medicine program during this period. The remarkable freedom from disease for our forces serving in an equatorial and subequatorial climate, in spite of almost unsurmountable environmental obstacles, was due in a great measure to the outstanding performance of duty of Lieutenant Colonel Ryan. Dr. Ryan graduated from the University of Louisville School of Medicine in 1934 and entered military service in May 1942.

MEDICAL OFFICERS COMPLETE GRADUATE COURSE

U. S. Army medical officers and some members of the faculty of medicine of the University of Vienna shown at a banquet in Vienna that marked completion of a course taken by the officers at the university.

All of the medical officers belong to the European command. It is the sixth such group that has studied at the University of Vienna.

Left to right, seated: Capt. Patrick Fitzgerald, Professor Dr. Kauders (faculty), Major William Brown, Professor Dr. Artz (faculty), Colonel Hayes, Lieutenant Colonel Sargeant, Professor Dr. Wiethe (faculty), Capt. Charles Moss. Left to right, standing, first row: Lieut. John Farquhar, Professor Dr. Lauda (faculty), Lieut. Donald Somerville, Lieut. Andrew Tessitore, Lieut. John Costello, Capt. Robert Montgomery, Professor Dr. Chiari (faculty), Lieut. Robert Kiley, Professor Dr. Lindner (faculty). Left to right, standing, second row: Lieut. James Gilboy, Capt. William Doremus, Professor Dr. Fellinger (faculty), Professor Dr. Antoine (faculty), Capt. Stephen N. Jones, Lieut. Robert Williams, Lieut. John Morris, Lieut. James Keehan and Capt. Carl Kundert.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Drs. Pottenger and Evans Receive Tuberculosis Awards.—Dr. Francis M. Pottenger, Monrovia, former vice president of the state board of public health, has received the medal from the California Tuberculosis and Health Association in recognition of his outstanding services in tuberculosis work. Dr. Pottenger was a guiding force in the organization of the Southern California Anti-Tuberculosis League, and its past president. Dr. George H. Evans, Berkeley, received a similar award. Both he and Dr. Pottenger are the only living members of the first committee appointed in 1904 by the California Medical Society to begin a study of tuberculosis in California.

Honorary Degrees for $25.—A copy of the following letter to a doctor of naturopathy in Dallas, Texas, has been received from the Texas State Board of Medical Examiners:

THE UNIVERSAL EDUCATIONAL GUILD

6411 Hollywood Blvd. Hollywood 28, California.
April 1, 1946.

Dr. ————————, B.A., N.D.
Dallas 4, Texas.

Dear Doctor:

In answer to your questions concerning the Guild please note the following: We are able to assist you in obtaining such Honorary degrees as Ph.N., M.N., Ps.D., Ph.D., LL.B., LL.D. et cetera. And from such schools as the following: The Southern College of Naturopathic Physicians and Surgeons; the Memphis College of Naturopathy; the Southern College of Psychiatry; the College of Drugless Healing; the American Health Association; "B.A., B.S., M.S., D.Sc., Ps.D., Ph.D.," and so on. The total cost to you for either of these degrees will not be more than $25.00 as all these institutions of learning are Members of the Guild and have agreed upon the above mentioned. The N.D.Sc. can also be obtained. If you desire to secure your M.S. (Honorary) this too can be arranged. The cost is the same. It will be impossible for non-Members to receive either of these Honorary degrees. As was mentioned in our previous letter that should you fail to receive perfect satisfaction while a Member of the Guild we shall return your Membership dues plus the 8% interest. I will personally assist you in preparing the necessary thesis for either of the Honorary degrees. I am often referred to as a "Ghost Writer." Granting you understand this term you will also realize that you may be sure of obtaining the degree of your choice. The necessary educational qualifications on your part doesn't matter. For you must understand that Honorary degrees are not based upon the same prerequisite academic training. When considering the cost of grading your thesis or examination (of Honorary nature) and the printing and mailing of your Diploma approximately $25.00 will have been spent on same.

I have been engaged in this work for eleven years and so far of the 2254 Members who have joined during these years not one has so far requested his Membership withdrawn from our files.

Then, too, Doctor, you must remember that we offer you other fine Services.

Your only obligation to the Guild will remain the same as it has been for the past 11 years: $10.00 to join and $2.00 each year to belong.

It will be a pleasure to hear from you again Doctor ———. With best wishes, I am,

Very sincerely yours,
/S/
Dr. N. W. Nichols, M.D., N.D., Ph.D.
President.

NN:K

P.S. I am a licensed D.C., D.O., M.D., N.D.
Also, a member of the Bar—LL.B., LL.D.
Hold my Ph.D. in Phology, Philosophy, Bible, et cetera.

COLORADO

Establish Rheumatic Fever Library.—The Colorado Rheumatic Fever Library has been established at the University of Colorado School of Medicine, Denver, in an effort to assemble in one place all that has been written on the subject of rheumatic fever. Efforts will be made to collect all available reprints or photostatic and typewritten copies of them. The material will be cross indexed and assembled in bound volumes by years. The collection will eventually be made available to all workers in this field. Libraries, medical journals and those writing in the field of rheumatic fever can assist by contributing papers relating to the subject. The library has been made possible through the financial assistance of the Ladies Auxiliary of the Rocky Mountain Screen Club and the services of volunteers working under the direction of the Denver Area Rheumatic Fever Diagnostic Service. Information may be obtained by writing Dr. Ward Darley, Dean, University of Colorado School of Medicine and Hospitals, 4200 East Ninth Avenue, Denver 7.

ILLINOIS

Pioneer Woman Doctor Awarded Medal.—The Henry County Medical Association last month awarded a gold medal to Dr. Hattie B. Meliak, Kewanee, who has practiced medicine in that city for fifty years.

Spotted Fever in Illinois.—Three cases of spotted fever have been reported in southern Illinois, according to Dr. Roy Harrell, state district health officer. Health officials have issued warnings to avoid tall grass, weeds and undergrowth where the ticks could be picked up.

Society News.—The Peoria Medical Society heard Dr. Myron D. Miller, Washington, D. C., Tuberculosis Control Division, U. S. Public Health Service, discuss "Recent Developments in Management and Control of Tuberculosis" at its meeting May 20.

Chicago

Filth in Some Soft Drink Bottling Plants.—The advisory committee of the Chicago-Cook County Health Survey released on June 15 a report on a survey of twenty-eight of the city's fifty carbonated beverage and seven bottled water plants. The investigators made the study in February 1947, and the report was prepared by the U. S. Public Health Service as a part in its audit of health conditions requested by Chicago and Cook County governmental agencies. Much of the 175 million pints of soft drinks which Chicagoans drink each year is said to be manufactured under insanitary conditions and operating methods. Among the sanitary defects listed in the report are the following: 1. The surroundings of nine of the plants surveyed were described as filthy. 2. Toilet facilities in eleven plants were either lacking, in need of repair or dirty, and twenty-four of the plants did not have cleaning and washing facilities. 3. In many of the plants personal cleanliness was neglected and employees' clothes were dirty. In most cases employees were wearing their regular clothes and had not been furnished with washable outer garments to be used only for plant duty. 4. The methods used in handling, storage and preparation of ingredients were deplorable. 5. Dirty floors were noticed in ten of the plants, and in fifteen the walls and ceilings were badly in need of repair. 6. The storage and handling of caps, corks and other closures in dirty bins was very common. 7. In only one plant were the bottles properly protected with overhead shields from the bottle washer to the filler in order to prevent contamination. 8. Lack of covers on syrup tanks to prevent contamination from dust, flies and vermin was evident. 9. Several plumbing connections which would allow waste water to siphon back into drinking water supply were noticed in various plants. (All the carbonated beverage plants used the municipal water supplies in making their beverages.)

The majority of the defects in the six bottled water plants surveyed were similar to those found in the carbonated beverage plants. In addition, however, the investigators pointed out other insanitary conditions. For example, the practice of shipping water from out of state to Chicago in thirty gallon steel drums for rebottling presents a public health problem. These drums collect dust around the pouring hole, which can easily contaminate the water unless sufficient precautions are taken. Some of the plants surveyed were using a special spout for handling this water, but it was either not of a sanitary type or was handled improperly and given no bacterial treatment. Sanitary inspections of bottling plants located outside Chicago have never been made by local authorities, and this failure is due to a lack of proper city ordinance and to inadequacy of the inspection staff. The survey found also that the lack of suitable legislation

covering the public health aspects of this important industry on both state and local levels is deplorable. Neither the city of Chicago nor the state of Illinois has modern ordinances on this subject. The survey recommended that an ordinance be adopted, at once, similar to that of the sanitary code of the American Bottlers of Carbonated Beverages, providing for the regulation of sanitation and distribution of all phases of the beverage and bottled water industry.

LOUISIANA

Intestinal Tumors of Dysenteric Origin.—In the paper by this title in THE JOURNAL, April 5, page 994, one of the footnotes is as follows: "From the Southern Baptist Hospital and Lakeshore Hospital, New Orleans." The director of the Touro Infirmary, New Orleans, writes that 2 of the cases quoted were patients in Touro Infirmary and that two of the six cuts in the article are from the records of Touro Infirmary.

Appoint New Professors.—The School of Medicine, Louisiana State University, New Orleans, has announced the following appointments: Dr. James D. Rives, formerly clinical professor of surgery, as professor and head of the department of surgery. Dr. Rives succeeds Dr. Urban Maes, who has retired and has been appointed professor emeritus. Drs. Joseph A. Danna and Narcisse F. Thiberge have also reached the age of retirement and have been appointed clinical professors emeritus of surgery and medicine, respectively. Dr. Sidney S. Chipman, formerly in the practice of pediatrics at Norwalk, Conn., and during the past year a student in the School of Public Health, Yale University, will be associate professor of pediatrics on a full time basis. Dr. Chipman will be director of the postgraduate extension program in pediatrics in the state of Louisiana on a joint appointment of the state university and the state board of health.

MASSACHUSETTS

State Medical Election.—At a meeting of the Massachusetts Medical Society, May 20-22, the following officers were elected: Drs. Edward P. Bagg, Holyoke, president; Daniel B. Reardon, Quincy, president-elect; Charles J. Kickham, Boston, vice president; Joseph Garland, Boston, secretary; Eliot Hubbard Jr., Cambridge, treasurer, and Norman A. Welch, Boston, assistant treasurer.

Duncan Reid Appointed Professor of Obstetrics at Harvard.—Dr. Duncan E. Reid, Boston, will become William Lambert Richardson professor of obstetrics at Harvard Medical School, Boston, and obstetrician in chief to the Boston Lying-In Hospital on July 1, to succeed Dr. Frederick C. Irving, who resigned both positions Dec. 31, 1946. Dr. Reid has been on the staff of the Lying-In Hospital since 1933 and on the staff of Harvard Medical School since 1935. He received his medical degree from Northwestern University Medical School, Chicago, in 1932 and served as an intern and resident in the Passavant and St. Luke's Hospital of that city before going to Boston. His research in the field of obstetrics covered such subjects as pregnancy complicated by hypertension and albuminuria, the treatment of vomiting in early pregnancy, cardiac asthma and acute pulmonary edema as a complication of the toxemias of pregnancy and the treatment of prolonged labor.

MICHIGAN

Appoint Superintendent of Sanatorium.—Dr. W. Leonard Howard has been appointed medical superintendent of Wm. H. Maybury Sanatorium at Northville. A graduate of Queens University Faculty of Medicine, Kingston, Ont., he has been medical director of the American Legion Hospital, Battle Creek, for more than nine years and for the last five years has been medical director and superintendent of the Arthur S. Kimball Sanatorium. Maybury, an 846 bed sanatorium, is one of two institutions in the Detroit municipal sanatorium setup and one of the largest tuberculosis hospitals in the country. Dr. Howard succeeds Dr. Henry S. Willis, resigned.

MINNESOTA

State Medical Meeting at Duluth.—The annual meeting of the state medical association will be held June 30 to July 2 at the Duluth Hotel, Duluth, under the presidency of Dr. Louis A. Buie, Rochester. Out of state speakers include Drs. Robert E. Gross, Boston, specialist in heart surgery; George E. Shambaugh Jr., Chicago; Marcy L. Sussman, New York, who will deliver the annual Russell D. Carman Lecture in radiology; T. Benedict Massell, Boston; John R. Neffe, National Research Council, Philadelphia; Joseph G. Molner, Detroit; Haven Emerson, New York; Dean Smiley and Fred V. Hein, Chicago, of the American Medical Association. Twenty round table luncheons will be held at 12:15 Tuesday and Wednesday at which recent developments in scientific medicine will be discussed. "Rural Health—A Joint Responsibility" is the subject for discussion following the annual meeting. The first annual A. J. Sanford Lecture will be delivered by Dr. Elexious T. Bell, department of pathology, University of Minnesota, Minneapolis, on "The Pathology of Diabetes Mellitus." At the annual banquet Tuesday at 7 p. m. Fifty Club certificates and pin and the Southern Minnesota Medical Association Medal for the best individual scientific exhibit will be presented. All physicians who served in World War II are invited to a luncheon meeting at 12:30 Monday in the Tally-Ho Room, Holland Hotel, sponsored by the Society of Medical Veterans in Duluth.

MISSISSIPPI

State Medical Election.—At the annual meeting of the Mississippi State Medical Association in Biloxi, May 6-8, Dr. Reuben B. Caldwell, Baldwyn, was made president-elect. Dr. Paul G. Gamble, Greenville, is president. Registration for the meeting was about 380. Among the visitors were Dr. George F. Lull, Secretary and General Manager of the American Medical Association; Mr. C. P. Laranz, secretary-manager of the Southern Medical Association, and Dr. Rudolph Matas, New Orleans. The 1948 meeting is to be held in Jackson next May.

NEW JERSEY

Passaic County Society Celebrates Centennial.—Passaic County Medical Society celebrated its centennial in Paterson May 20-21. The scientific program included Dr. Irvine H. Page, director of research, Cleveland Clinic, Cleveland, who spoke on "Modern Concepts and Medical Management of Arterial Hypertension"; Dr. T. Duckett Jones, assistant professor of medicine, Harvard Medical School, Boston, "Diagnosis and Management of Acute Rheumatic Fever"; Drs. Milton J. Raisbeck, associate professor of medicine, and Samuel A. Thompson, associate professor of surgery, both of the New York Medical College, New York, "Practical Problems in Coronary Disease." The speaker at the centennial banquet was Dr. Max M. Peet, department of surgery, University of Michigan Medical School, Ann Arbor, on "The Surgical Treatment of Hypertension."

NEW YORK

Diabetes Association.—On April 13 the Rochester Regional Diabetes Association was formulated as a subdivision of the American Diabetes Association. Dr. Charles B. F. Gibbs, who heads the new society, organized the first diabetes clinic at Rochester General Hospital in 1925 and served as its chief for twenty years. He is a past president of the Rochester Academy of Medicine and chief of the Diabetes Clinic at Strong Memorial Hospital. Dr. Bernard A. Watson, Clifton Springs, N. Y., was named first vice president and Dr. David F. McGarvey second vice president. Dr. H. Raymond Drysdale, Rochester, is secretary-treasurer.

Atomic Energy Commission Study in Japan.—Dr. John S. Lawrence, associate professor of medicine, and Dr. Herman E. Pearse Jr., associate professor of surgery, at the University of Rochester School of Medicine and Dentistry, Rochester, have been assigned by the Atomic Energy Commission to a three month study in Japan in connection with the atomic bomb casualties at Hiroshima and Nagasaki. They left Rochester on June 2. Dr. Lawrence was attached to the wartime atomic medical research project at the School of Medicine and Dentistry under the Manhattan Engineer District for nearly four years. Dr. Pearse was a member of the radiological safety task force under Col. Stafford L. Warren, formerly professor of radiology at the Rochester Medical School and chief of the medical section of the Manhattan Project, in the atomic bomb test at Bikini last year.

New York City

Personal.—Dr. Milton B. Plotz has been elected attending physician, Kings County Hospital, Brooklyn, Long Island College of Medicine Division, and visiting physician, Bushwick Hospital, Brooklyn.

Warn Against Contaminated Shellfish.—A warning that shellfish taken from Jamaica, Pelham and Eastchester bays are contaminated and should not be eaten was issued June 6 by Health Commissioner Israel Weinstein. Shellfish taken from the polluted waters of these bays are likely to cause typhoid and other serious intestinal diseases. Swimming also is prohibited. Additional health department inspectors have been assigned to the areas to enforce the health department's sanitary code.

OHIO

State Medical Election.—At the annual meeting of the Ohio State Medical Association in Cleveland last month Dr. Ralph L. Rutledge, Alliance, became president and Dr. Arthur A. Brindley, Toledo, was chosen president-elect. Cincinnati was selected as the convention city for 1948.

Belgian Professor Gives Hanna Lecture.—The fifty-first Hanna Lecture of the Academy of Medicine of Cleveland was delivered by Dr. Norbert Goormaghtigh, professor of pathology, University of Ghent, visiting professor, Commission for Relief in Belgium, May 12 in Cleveland. His subject was "The Anatomical Basis of the Autonomy of the Renal Circulation." The Hanna Lectures were established in 1913 by Dr. George W. Crile in honor of Mr. H. Melville Hanna, an industrialist of Lisbon, Ohio, primarily to take advantage of the presence in this country of distinguished scientists for lectures on subjects of interest to medicine.

PENNSYLVANIA

District Society Meetings.—The Eighth Councilor District of the Medical Society of the State of Pennsylvania will hold its annual meeting June 25 at the Kahkwa Club west of Erie. The speaker will be Dr. Armando Trabuco, urologist of Argentina. During the afternoon session the president of the state society will present fifty year testimonials to the honor guests, Drs. Clyde L. Williams, Linesville; John Ackerman, Erie; Charles E. McCune, West Springfield; David A. Brown, Greenville; Willard B. Campbell, Harrisville; Judson C. Cooley, Sandy Lake; George W. Kennedy, Sharon, and Charles H. VerMilyea, Russell. The Third, Fourth and Twelfth Councilor Districts will meet at the Hotel Sterling, Wilkes-Barre, on June 25. On the scientific program will be Dr. Charles L. Brown, Philadelphia, "Differential of Hyperthyroidism"; Dr. Thaddeus L. Montgomery, Philadelphia, "Management of Toxemias of Pregnancy"; Dr. Louis H. Twyeffort, Philadelphia, "Psychiatric Problems Encountered in General Practice"; Dr. Monroe J. Romansky, Washington, D. C., "The Current Status of Penicillin Therapy—Uses and Abuses," and Dr. Irving J. Wolman, Philadelphia, "The Rh Factor." Fifty year testimonials will be presented to Drs. Calvin J. Balliet, Lehighton; John E. Fretz, Easton; Rossitter J. Lloyd, Olyphant; Agnes Sholly Knights, Selinsgrove; John K. Love, Easton; John R. Dyson, Hazelton; Frederick W. Roberts, Plymouth; John E. Scheifly, Kingston, and Earl E. Wagner, Wilkes-Barre.

Philadelphia

Personal.—Dr. Henry P. Brown Jr. left early this month for interior China, where he plans to spend four years as a medical missionary. He has been on the staff of Pennsylvania and Pittsburgh hospitals and a clinical adviser in surgery at the University of Pennsylvania School of Medicine, Philadelphia, of which he is a 1912 alumnus.

Effort to Detect Pelvic Cancer Early.—The Philadelphia Obstetric Society, in conjunction with the department of public health and the Philadelphia County Medical Society, has formed a committee chiefly of gynecologists to aid in preventing delay between the time the first symptom of pelvic cancer appears and the inauguration of proper treatment. All cases of the disease in hospitals in the city are to be reviewed by this committee, and when a delay has occurred in the institution of proper treatment the patient's former attending physicians and gynecologists are invited to a meeting in order to determine the cause and decide how such a delay can be avoided.

Pittsburgh

The Mellon Lecture.—The thirtieth Mellon lecture, sponsored by the Society for Biological Research of the University of Pittsburgh School of Medicine, was delivered May 29 by Donald Van Slyke, Ph.D., Rockefeller Institute of Medical Research, on "Studies of Renal Physiology."

TENNESSEE

New Law Requires Annual Registration.—Chapter 9, Public Acts of 1947, of the State of Tennessee becomes effective July 1. Among other things the law requires that all persons who hold a license to practice medicine in Tennessee must register and pay a fee of $2.50 some time between July 1 and Sept. 30, 1947. Failure to register will result in automatic revocation of the license to practice. On or before Dec. 31, 1947, and on or before each succeeding December 31, all licensees must register and pay a fee of $5. Failure to register by Jan. 31, 1948 and each succeeding January 31 will result in revocation of license. After the first registration, licensees who have retired from practice or who are practicing in other states may submit an affidavit of retirement on forms provided. Commissioned medical officers in the U. S. Army, Navy and Public Health Service are relieved from registration but must register within thirty days after discharge from service. Registration and retirement forms may be obtained from Dr. Robert H. Hutcheson, executive officer, State Licensing Board for the Healing Arts, 420 Sixth Avenue, North, Nashville 3, Tenn.

UTAH

Dr. George Sayers Awarded the Abel Prize.—At the annual meeting of the American Society for Pharmacology and Experimental Therapeutics, held in Chicago May 18-22, the John J. Abel Prize in pharmacology was awarded to George Sayers, Ph.D., assistant professor of pharmacology in the University of Utah School of Medicine, Salt Lake City. Dr. Sayers won the prize for his paper entitled "The Pituitary-Adrenal System." This prize of $1,000 and a bronze medal, plus an additional amount up to $150 for traveling expenses, was established in the society by Eli Lilly and Company for the purpose of stimulating fundamental research in pharmacology in the United States and Canada.

VIRGINIA

Memorial Exercises at Medical College.—Major Gen. David N. Grant, formerly air surgeon, U. S. Army, delivered the address at the memorial exercises of the Medical College of Virginia, Richmond, May 30. A plaque in commemoration of the personnel of the 45th General Hospital who died in the service of their country, was presented to President William T. Sanger by Colonel Powell Williams, unit director and chief of the medical service. A portrait of Dr. Frederick W. Shaw, Richmond, until his death professor of bacteriology, was presented to the college by Charles H. Meeks, president of the senior class in medicine.

Personal.—Dr. Philip St. L. Moncure, since 1897 a member of the medical staffs of St. Vincent's Hospital and the Hospital of St. Vincent De Paul, Norfolk, was honored May 8 at a testimonial banquet and reception celebrating his golden jubilee anniversary.——Dr. Clara C. Joel Fleischer has been named director of maternal and child health of the city department of health of Richmond, a newly created post. She will develop a citywide program of maternal, infant and preschool health. An American citizen, Dr. Fleischer is a pharmacy graduate of Prague, Czechoslovakia, and received her doctor of medicine degree from the Medical College of Virginia, Richmond. She has been in charge of the night venereal disease clinic at the college on a part time basis since 1943, as well as industrial physician at du Pont.

GENERAL

Medical Women's International Congress.—The Medical Women's International Association will hold its Fifth Congress June 24 to 30 in the Indian Institute, Amsterdam, Holland. The scientific program has been planned together with visits in Amsterdam and its surroundings as well as to various institutions.

Plague Infection.—United States Public Health Service, in its public health report for May 16, states that on April 21 and 22 proved plague infection was reported in ectoparasites from rodents in Arizona and Washington. In Navajo County, Arizona, fleas and a tick from two ground squirrels proved positive, and Yakima County, Washington, fleas from one ground squirrel and field mice proved positive.

Twelve Nations Ratify Constitution of World Health Organization.—Thus far twelve nations have ratified the World Health Organization constitution: Liberia, Ethiopia, Switzerland, Transjordan, Italy, the Netherlands, China, United Kingdom, Canada, Iran, New Zealand and Syria. A total of twenty-six ratifications by members of the United Nations are required for the World Health Organization to become a specialized agency of the United Nations.

Grant for Allergic Research on Multiple Sclerosis.—The Association for Advancement of Research of Multiple Sclerosis, Inc. made its first grant for specialized research on the disease June 11. The sum of $64,350 will cover three years of research in the field of allergy in connection with multiple sclerosis and will be under the direction of Elvin A. Kabat, Ph.D., assistant professor of bacteriology of Columbia University College of Physicians and Surgeons. The society was formed less than a year ago.

Association of American Physicians Meeting.—The Association of American Physicians at its annual meeting in Atlantic City, May 7, elected Dr. Alva H. Gordon, Montreal, Canada, president; Dr. Francis G. Blake, New Haven, Conn., vice president; Dr. Walter Bauer, Boston, treasurer, and Dr. Henry M. Thomas Jr., Baltimore, secretary. The George M. Kober Medal was presented to Dr. Eugene F. Du Bois, New York, professor of physiology, Cornell University Medical College, for his contributions to investigative and clinical medicine.

International Congress on Mental Health.—This congress, which will be held from August 12 to 21 in London, England, will consist of three conferences: (1) International Conference on Child Psychiatry, which will hold morning sessions August 12-15; (2) the International Conference on Medical Psychotherapy, which will hold afternoon sessions August 12-15, and (3) International Conference on Mental Hygiene, meeting August 16-21. Sessions will take place at Central Hall, Westminster. Subjects to be discussed at the conferences are Foundations of Mental Health in Childhood, Guilt, and Mental Health and World Citizenship. Inquiries should be addressed to: The Organizer, International Congress on Mental Health, 39 Queen Anne Street, London, W. I., England.

Danish Library Desires Back Issues of The Journal.—The University Library, Copenhagen, Denmark, has made a request for certain bound volumes of THE JOURNAL. The request, signed by Torkil Olsen, library assistant, Department 2-Nr. Allé 49, Copenhagen, Denmark, follows: "Due to the very great demand for THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION it has been decided to make an attempt to procure a set of Vols. 106-133 for shelving in the library's reading room. I am therefore taking the liberty to ask you kindly to insert a short note in THE JOURNAL to the effect that our library is anxious to have the particular volumes (106-133), and that we should be grateful in case a doctor of Danish descent would send these volumes or some of them to our library. All expenses in connection with the forwarding will be covered by our library."

Medical Aid to China.—At the annual meeting of the American Bureau for Medical Aid to China in New York City, April 12, Magnus I. Gregersen, Ph.D., was elected president on the retirement of Dr. Donald D. Van Slyke, president for the past six years. Dr. Gregersen has been head of the physiology department of the College of Physicians and Surgeons, Columbia University, since 1937. Five new members elected directors are Edmond V. Cowdry, Ph.D., head of the anatomy department, Washington University, St. Louis; Dr. James A. Crabtree, assistant surgeon general, U. S. Public Health Service, Washington, D. C.; Dr. Howard C. Naffziger, professor of surgery, University of California Medical School, Berkeley-San Francisco; Miss Gertrude E. Hodgman, dean of the Peiping Union Medical College School of Nursing until 1940, and John T. Tripp, Ph.D., associate director, bureau of laboratories, Michigan Department of Health, Lansing.

CANADA

Art and Camera Salon.—Canadian Physicians' Fine Art and Camera Salon will be held in the Hudson's Bay Auditorium, Winnipeg, June 23-27, in conjunction with the convention of the Canadian Medical Association. Two bronze plaques will be presented, one to the winner of the Fine Arts section and one to the winner of the Photographic section.

Public Health Officers Honored.—At a joint dinner of the Canadian Public Health Association and the State and Provincial Health Authorities of North America in Quebec May 22 certificates of honorary membership of the Canadian Association of Public Health were presented to Dr. Thomas Parran, surgeon general of the United States, and to Dr. Walter L. Bierring, president of the State and Provincial Health Authorities of North America and commissioner of health of Iowa, both of whom addressed the group.

National Cancer Institute of Canada Created.—To coordinate all efforts in the cancer field in Canada on a national basis, the minister of the National Health and Welfare called a conference of representatives from all organizations working in the cancer field in Canada, as a result of which the institute was organized. It will (1) provide for the education and subsistence of cancer research workers; (2) attract more men into the program begun by the Canadian Association before the war by providing undergraduate and postgraduate education for physicians, and attempting to establish a uniform system of reporting cancer cases and deaths throughout the dominion; (3) continue the lay educational program now being conducted by the Canadian Cancer Society, and (4) raise funds to support the work of the institute. Dr. Allan W. Blair, Regina, Sask., was recently appointed managing director. The first project planned by the institute is an immediate survey of all cancer facilities for diagnosis, treatment and research in the dominion.

LATIN AMERICA

New Sanatorium in Chile.—Dedication of the 500 bed Trudeau Hospital at Santiago, Chile, took place March 27. Built jointly by the coordinator of Inter-American affairs of the United States and the government of Chile, the hospital will be under the direction of Dr. Rafael Lorca O., who has been appointed as superintendent and medical director.

Dr. Bernardo Houssay Receives Research Award.—The American Pharmaceutical Manufacturers' Association presented its first annual research award April 28 to Dr. Bernardo A. Houssay, Buenos Aires, Argentina, at its annual meeting in Boca Raton, Fla. The award was presented to Dr. Houssay in recognition and appreciation of his contribution to medical science on nomination by a distinguished advisory committee. The association listed Dr. Houssay's most striking contribution to biology and medicine in the field of the pituitary gland, diabetes and carbohydrate metabolism.

FOREIGN

Flying Doctors.—Medical flights by the Flying Doctor Service in Australia "outback" last year covered 207,000 miles, an increase of more than 12,000 miles over the previous year. More than 5,000 patients, the service reports, were given medical advice by radio during 1946.

Fight Tuberculosis in Italy.—The United Nations Relief and Rehabilitation Administration joined Italian forces May 4 in a five year plan to combat a sharp increase in Italy's tuberculosis death rate. About 60,000 persons died in 1945, as compared with 33,226 in 1940, and it is estimated that 500,000 Italians need treatment at present. The plan will cost about $12,380,000 and will be financed from the sale of UNRRA imports in Italy. Reequipping ninety dispensaries, partly reequipping sixty-two more and providing 12,595 additional beds in eighty-eight hospitals are included in the program.

European Rheumatology Congress.—The first congress of this kind will be held at Copenhagen and Aarhus, Denmark, September 4-8. It is being sponsored by the International League Against Rheumatism. The scientific program beginning September 5 includes the discussion of etiology and pathogenesis of rheumatic fever and rheumatoid arthritis, with a special view to streptococci as the source of the disease; discussion on the treatment of rheumatoid arthritis, particularly gold treatment and other chemotherapy; the social importance of the rheumatic diseases, and biochematological problems of rheumatology. A two day sightseeing tour through Denmark has also been planned.

CORRECTIONS

American Psychiatric Association.—The second line of the item "Special Society Elections" in THE JOURNAL, June 14, page 621, should read the American Psychiatric Association instead of the American Pediatric Association.

Foreign Visitor.—Dr. Henry Makower (THE JOURNAL, May 10, p. 199) is chief assistant of the Institute of Medical Microbiology at the University of Wroclaw, Wroclaw, Poland, rather than of the University of Warsaw.

Date of Postgraduate Course.—The Columbia University course at Roosevelt Hospital "Recent Advances in Allergy," listed in Postgraduate Courses for Veterans and Civilian Physicians in THE JOURNAL, June 14, page 626, will be given November 3-8 instead of November 10-15 as listed.

Marriages

MERCER BRANNON SELL JR., Dallas, Ga. to Miss Ethel Elizabeth Smith of High Point, N. C., in Augusta, Ga., Dec. 27, 1946.

ROBERT BENTHAM SIMONS JR., Charleston, S. C., to Miss Sara Elizabeth Holden in Detroit Nov. 16, 1946.

HAROLD W. SPIES, Washington, D. C., to Miss Sadie Frances Compton of Johnson City, Tenn., January 30.

AMADEO B. SAELI, Savannah, N. Y., to Miss Ollie B. Hall of Sylva, N. C., in Salt Lake City, February 15.

Deaths

Eben Elliot Smith ✠ Medical Director, Captain, U. S. Navy, retired, Daytona Beach, Fla.; born near Dillsboro, Ind., July 12, 1891; Johns Hopkins University School of Medicine, Baltimore, 1917; fellow of the American College of Physicians; entered the U. S. Navy in 1917; during World War I served as medical officer at air stations in Ireland, on a destroyer and on a troop transport; on his return to this country assigned to the Naval Medical School as instructor in pathology; at various times served at Brooklyn Naval Hospital as clinical pathologist and ward officer, with the U. S. Marine Expeditionary Forces in Santo Domingo, on the U. S. S. *Saratoga* as a flight surgeon, at the Naval Air Station at San Diego, on the U. S. S. *Mississippi* as senior medical officer, in the Bureau of Medicine and Surgery as officer in charge of the division of publication and became editor of the *Naval Medical Bulletin*, and at the Naval Air Station, Jacksonville, Fla.; member of the Association of Military Surgeons of the United States, retired Oct. 1, 1945 for physical disability incurred in line of duty; died, June 16, 1946, aged 54, of coronary thrombosis.

Clyde Dale Blake, Hays, Kan.; born in Johnsonville, Ill., March 22, 1878; Kansas Medical College, Medical Department of Washburn College, Topeka, 1903; past president of the Kansas Medical Society; member and past president of the Central Kansas Medical Society; a charter member of the Golden Belt Medical Society; member of the American Medical Association, American Cancer Society and the Radiological Society of North America; fellow of the American College of Surgeons; member of the board of health; member of the founders group of the American Board of Surgery; served in the medical corps of the U. S. Army during World War I; captain, medical reserve corps, not on active duty; vice president of the board of directors of the First National Bank; a member and past president of the Rotary Club and past president of the chamber of commerce; formerly director of the state chamber of commerce; surgeon for the Union Pacific Railroad; chief of staff of the Hadley Memorial Hospital, where he died March 30, aged 69, of hypernephroma.

James Taft Pilcher ✠ Brooklyn; born in Brooklyn on March 31, 1880; Columbia University College of Physicians and Surgeons, New York, 1904; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; member of the American Gastro-Enterological Association; served in the medical corps of the U. S. Army in France, a commanding officer of the 108th Field Hospital, holding the rank of major during World War I and for his services overseas received the Distinguished Service Medal; formerly a fellow in medicine at the Mayo Clinic in Rochester, Minn.; attending surgeon, Unity and Brooklyn State hospitals; consulting surgeon, Wyckoff Heights and Evangelical Deaconess hospitals in Brooklyn, Eastern Long Island Hospital in Greenport and the Jersey City Medical Center in Jersey City; managing editor of the *Annals of Surgery*; died in the Brooklyn Hospital April 6, aged 67, of angina pectoris.

Irvin Dilling Metzger, Pittsburgh; born in New Enterprise, Pa., April 12, 1873; Hahnemann Medical College and Hospital, Philadelphia, 1904; studied at the University of Vienna and in London, 1913-1914; served as chairman and president of the state board of medical education and licensure; for many years inspector of medical schools and hospitals; president of the Federation of State Medical Boards of the United States, 1935-1936; past president of the American Institute of Homeopathy; superintendent of public schools in Hollidaysburg, Pa., from 1895 to 1900; served during World War I; received honorary degrees from the Hahnemann Medical College of Philadelphia, Juanita College in Huntingdon, Pa., and the University of Pittsburgh; on the staff of the Shadyside Hospital, where he died April 1, aged 73, of pneumonia and leukemia.

Christian J. Amble ✠ Albuquerque, N. M.; Illinois Medical College, Chicago, 1903; served as first treasurer of Torrance County; for three terms health officer of Torrance County; member of the Fourteenth Legislative Assembly, holding membership on various important committees; died recently, aged 79, of coronary thrombosis.

Rogers Coke ✠ Marshall, Texas; University of Texas School of Medicine, Galveston, 1899; past president of the Harrison County Medical Society and of the Northeast Texas District Medical Society; fellow of the American College of Surgeons; regional chairman of the Selective Service Medical Advisory Board during World War II; chairman of the board of Kahn Memorial Hospital for many years; died February 11, aged 70, of cerebral hemorrhage.

Philip Patrick Crimmins, Brockton, Mass.; Baltimore Medical College, 1907; served during World War I; formerly affiliated with the U. S. Public Health Service reserve and various Veterans Administration hospitals; died February 27, aged 62, of coronary thrombosis.

Benjamin Franklin DeVore, Oakland, Ore.; Jefferson Medical College of Philadelphia, 1907; served during World War I; died in Eugene in February, aged 70, of coronary sclerosis.

Charles Elton Duffy ✠ Parishville, N. Y.; University of Vermont College of Medicine, Burlington, 1896; died February 11, aged 76, of aneurysm of the abdominal aorta and arteriosclerosis.

Louis Martin Edens, Cabool, Mo.; University Medical College of Kansas City, 1907; member of the American Medical Association; died in St. Louis February 10, aged 61, of carcinoma of the larynx.

Morris Friedson ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1910; specialist certified by the American Board of Pediatrics; member of the New York Academy of Medicine; formerly on the faculty of his alma mater; on the staffs of the Beth David, Manhattan General and Gouverneur hospitals; formerly on the staffs of St. Mark's Hospital and the New York Nursery and Child Hospital; died March 17, aged 65, of heart disease.

Henry M. Hammond, Bergholz, Ohio; Baltimore Medical College, 1893; died February 9, aged 78, of angina pectoris.

Milton Mackey Osmun, Audubon, N. J.; Jefferson Medical College of Philadelphia, 1894; died in the Camden County General Hospital in Lakeland February 16, aged 88, of myocarditis and hypertension.

Argy Nicholas Padrous, Detroit; Marquette University School of Medicine, Milwaukee, 1943; began active duty as a first lieutenant in the medical corps, Army of the United States, in January 1944; released from the service with the rank of captain in September 1946; interned at the Grace Hospital, where he died February 14, aged 35, of acute glomerular nephritis and hypertension.

Jesse Ross Porter, Davenport, Iowa; Drake University Medical Department, Des Moines, 1897; died March 26, aged 77, of heart disease.

William Potter, Mason City, Iowa; Trinity Medical College, Toronto, Ont., Canada, 1892; died February 25, aged 80, of cerebral hemorrhage.

Wallace Preble, Cambridge, Mass.; Harvard Medical School, Boston, 1883; member of the American Medical Association; died February 22, aged 89, of cerebral thrombosis.

Willard De Forest Preston, Attica, N. Y.; University of Vermont College of Medicine, Burlington, 1899; member of the American Medical Association; veteran of the Spanish-American War and World War I; health officer of the consolidated health district of Attica since 1921; affiliated with St. Jerome and the Genesee Memorial hospitals in Batavia and the Wyoming County Community Hospital in Warsaw; surgeon for the Erie Railroad; died February 28, aged 69, of heart disease.

Mark Wyman Richardson ✠ Boston; Harvard Medical School, Boston, 1894; member of the Association of American Physicians; formerly secretary of the state board of health; died February 12, aged 79, of coronary heart disease.

George W. Tape, Shell Beach, Calif.; Detroit College of Medicine, 1889; died March 11, aged 81, of cerebral hemorrhage and arteriosclerosis.

Cornelius Carl Weber ✠ Philadelphia; Georgetown University School of Medicine, Washington, D. C., 1936; diplomate of the National Board of Medical Examiners; interned at the Misericordia Hospital, where he was a member of the staff; formerly member of the staff of the Jefferson Hospital and associated with the Abington (Pa.) Hospital, Temple University and St. Mary's hospitals; died March 12, aged 35.

George W. Wood, Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; associate in gynecology at his alma mater; fellow of the American College of Surgeons; member of the American Medical Association; served during World War I; on the staffs of the Methodist, City and St. Vincent's hospitals; died March 16, aged 67, of coronary occlusion.

Nelson A. Wright Sr. ✠ Manito, Ill.; Missouri Medical College, St. Louis, 1899; past president of the Mason County Medical Society; died in the Methodist Hospital in Peoria March 25, aged 72, of uremia following a prostatectomy.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 10, 1947.

The British Journal of Nutrition

The Cambridge University Press announces the publication shortly, for the Nutrition Society, of a new quarterly, the *British Journal of Nutrition*. It will be devoted to reports of original work in all branches of nutrition and will incorporate the *Proceedings of the Nutrition Society*, which at present are published separately. The editorial board will consist of S. K. Kon (chairman), D. P. Cuthbertson, J. N. Davidson, R. C. Garry, G. Graham, J. Hammond, E. M. M. Hume, I. Leitch, W. C. Miller, F. Yates, B. S. Platt and J. A. B. Smith. Subscription rates for nonmembers of the Nutrition Society are $12.50 per volume of four quarterly parts. Separate parts will cost $4. Subscriptions should be addressed to the Cambridge University Press, 200 Euston Road, London, N. W. 1. Papers for publication and letters on editorial matters should be sent to Dr. S. K. Kon, *British Journal of Nutrition*, National Institute for Research in Dairying, Shinfield, near Reading, Berks, England. Information about the Nutrition Society may be had from the secretary at the same address.

Bicentenary of the Rotunda Hospital, Dublin

The bicentenary of the Rotunda Hospital, Dublin, the oldest obstetric hospital in the British Isles, will be held from July 7 to 11. Visitors will attend from all parts of the world. The opening session will be on the history of midwifery. The discussion will be introduced by Dr. T. P. C. Kirkpatrick and Dr. G. W. Kosmack, editor of the *American Journal of Obstetrics and Gynecology*. Other subjects for discussion are puerperal sepsis, eclampsia, shock in obstetrics, sterility and fetal and neonatal mortality. Visiting speakers will include Professor H. J. Stander of Cornell University, Professor F. C. Irving of Harvard, Professor Subodh Mitra of Calcutta, Dr. J. I. Hofbauer of Cincinnati, Professor H. L. Sheehan of Liverpool, Professor W. A. Scott of Toronto, Professor Henri Bedrine Lisle, Dr. J. V. O'Sullivan of London, Dr. Isidore Rubin of New York, Professor Axel Westman of Stockholm, Professor Bernard Zondek of Jerusalem, Dr. Peter Bishop of London, Professor J. S. Browne of Montreal, Professor Ebbe Brandstrup of Copenhagen, Professor F. J. Browne of London and Professor Dugald Baird of Aberdeen. Further particulars as regards the congress can be obtained from the secretary, 36, College Green, Dublin.

Acute Pancreatitis with Subcutaneous Fat Necrosis

While fat necrosis due to acute pancreatitis is commonly seen within the abdomen, where it affects the mesentery, omentum, pancreas and peritoneum, it is rare outside the abdomen except in the extraperitoneal fat. It has been observed in more distant regions—the mediastinum, pleura, pericardium, marrow of the long bones and periarticular fat. But, except when experimentally produced in animals, necrosis of subcutaneous fat seems to have been first reported in the *British Journal of Surgery* by Hugh Blauvelt. A married woman aged 41 was admitted to the hospital on Oct. 27, 1939 complaining of epigastric pain of two days' duration. Nausea and vomiting occurred the day before admission. She suffered from constipation, and micturition was difficult. The temperature was 99.6 F., the pulse 120 and the respiratory rate 24. While the abdomen was not distended, there were generalized tenderness and rigidity, more especially over the gallblader. The diagnosis lay between acute cholecystitis and acute pancreatitis. Next day many red areas, resembling erythema nodosum, appeared on the arms and legs. On October 29 laparotomy was decided on. The incision revealed necrosis of the extraperitoneal fat, and the abdomen was not opened. Excision of a portion of one of the superficial lesions on a leg revealed typical fat necrosis. The superficial areas of fat necrosis were confined to the arms, legs and buttocks excepting two on the back. They varied in size from a pin prick to a patch 2 inches or more in diameter. The urinary diastase amounted to 2,400 units in twenty-four hours. The blood sugar was 90 mg. per hundred cubic centimeters. Loewi's mydriatic reaction was positive. X-rays showed signs of gallstones. Recovery was slow. When examined seven months after the onset all external signs of fat necrosis had disappeared except a few rose colored areas on the thighs. On Aug. 8, 1940 two small stones and a chronically inflamed gallbladder were removed. On August 10 she became comatose, and death ensued in twenty-four hours. The blood urea before death was 200 mg. per hundred cubic centimeters. At the necropsy the bile ducts and pancreas were found normal and there was no evidence of recent or old fat necrosis. The kidneys were small and granular, and death was attributed to chronic nephritis.

The lesions so frequently found in the peritoneum, mesentery and pancreas itself in acute pancreatitis are attributed to the direct spread of the liberated ferment. When extraperitoneal fat, pleura, pericardium and mediastinum are affected, the lipase is said to travel by the lymphatics. Necrotic lesions in the bone marrow and periarticular tissues have been attributed to pancreatic emboli travelling by the blood stream. This would best account for the subcutaneous lesions that were observed.

BRAZIL

(From Our Regular Correspondent)

SÃO PAULO, May 3, 1947

The Stoneless Gallbladder

Dr. Joaõ Montenegro says that, as diagnostic methods improve, fewer patients with chronic cholecystitis without stones are operated on. Indeed, clinical cholecystitis without stones is becoming a rare disease. Most of the symptoms ascribed to it in the past were due to intestinal dyskinesia caused by food intolerance, and sometimes to dyskinesia of Oddi's sphincter having the same cause. The hepatic flexure of the colon and the duodenum are the main mystifiers. Intestinal dyskinesia produces erratic spontaneous pains with predilection for the duodenocholecysticocolonic (hepatic flexure) and appendicular areas, while elecited pains are encountered generally in more than one spot, or the whole abdomen may be tender but without muscular rigidity. Proper dieting, rest and supporting measures will relieve them. This intestinal dyskinesia, also called irritable colon, has led to cholecystectomies on normal gallbladders with a fair percentage of cures resulting from postoperative rest, dieting, muscular relaxation and ease of mind. On the other hand, well indicated cholecystectomies have failed to cure patients mainly because of the coexistence of the bowel dyskinesia. The diseased gallbladder is removed and the symptoms caused by it are allayed but the trouble caused by the dyskinesia persists. To obtain highly probable, complete cures one must be reasonably sure that there is not a coexistence of diseases. Poor results from other diagnostic errors and sequelae represent a small percentage in the series of cholecystectomies. Pathologists are urged to refrain from the diagnosis of cholecystitis in specimens that do not show clearcut evidences of inflammation, as suggested by Foss, because such a diagnosis encourages cholecystectomies on normal gallbladders. They should avoid meaningless expressions as chronic catarrhal cholecystitis; instead of that, more anatomopathologic expressions might be employed, such as exudative and proliferative cholecystitis.

Correspondence

PROLONGED REACTION TO BENADRYL

To the Editor:—In a clinical note entitled "Prolonged Reaction to Benadryl" (THE JOURNAL, February 8, p. 393) appeared the statement "Treatment was not given, but intravenous histamine was elected as the treatment of choice if the condition failed to improve." This rather innocuous remark provoked the following criticisms from Dr. Norman A. David and Dr. Norman W. Karr of the department of pharmacology, University of Oregon Medical School:

1. Fundamental principles were overlooked.
2. Procedures suggested in THE JOURNAL may be adapted in toto by the general practitioner too busy to investigate further.
3. In a case of shocklike reaction to benadryl, such as that reported by other authors in the same issue of THE JOURNAL, histamine could aggravate the condition with possible fatal outcome.
4. Histamine could be harmful in a case such as the one reported.
5. The authors' suggestion, which may have been justified in their case, should have been accompanied with a strong word of caution.
6. The radical treatment proposed. . . .
7. The use of intravenous histamine has no theoretical justification in most reactions to benadryl.

The objections to the contemplated use of the drug were on the following basis:

1. "Drugs seldom react on one mechanism or system. It is probable that most of the toxic reactions to benadryl involve mechanisms entirely distinct from its histamine activity."
2. "Histamine causes increased permeability of blood vessels —a picture closely resembling clinical shock."

Since the mechanism of the action of benadryl itself is unknown, much less the toxic reactions, the first objection is purely speculative.

The second statement is valid, or at least the first half of the statement is valid. As a matter of fact, this sentence (half sentence that is) is the only statement in the entire communication (with the exception of the sentence pertaining to drugs acting on more than one system), that can be substantiated by scientific proof. If this was the basis of the charge of overlooking fundamental principles, it would appear to be logical (but not excusable) since histamine causes capillary dilatation and increased permeability and would therefore appear to be theoretically contraindicated when these factors are already present in conditions such as drug reactions. Furthermore, histamine exposure can cause anaphylactic shock in some lower animals. Oddly enough, however, clinical evidence refutes the theoretical contraindications. Intravenous histamine has been successfully used for treatment of many allergies including that of penicillin urticaria, in which increased capillary permeability and dilatation are strongly in evidence. Bayard T. Horton, chief of the research division at the Mayo Foundation, in a paper read before the Southwest Allergy Forum in April 1946, stated that he and his co-workers had given thousands on thousands of injections of intravenous histamine in the aforementioned types of cases, without reaction, with good results, and considered it a safe drug. It is assumed that any one using histamine or any other medication will use proper dilution, technic of administration and precautions.

The reasons histamine was considered for use in the case under discussion are that:

1. It is the accepted antagonist of benadryl.
2. It has been successfully used in dissipating allergic edemas including those of drug reactions. Perineural edema was thought to be responsible for the neuritic symptoms in the case reported.
3. The drug was considered safe for the type of case under discussion.

It should be further pointed out that the use of histamine was not recommended to others. It was simply considered the treatment most likely to be of help in the one particular case under discussion—no other. It was to be used only if more conservative treatment failed. It was not used.

It is felt that a dissertation on indications, limitations and possible dangers of a drug that was not used, in a case report, would have encroached on the technic of Colonel Stoopnagle and Budd.

It is further felt that the criticisms were unwarranted, unsubstantiated and, most amazing of all, directed against conditions foreign to the case in question and at a drug which was not used.

SAM SCHWARTZBERG, M.D., San Antonio, Texas.

THE GENERAL PRACTITIONER IN THE HOSPITAL ORGANIZATION

To the Editor:—Dr. M. H. Miller's article in THE JOURNAL, May 3, Page 15, creates a desire to express the opinion that parallel discussion is necessary in the promotion of policy matters. Our constant problem, personal, political, social and economic, is to choose between being militant and being decent. We may do business by meeting the buyer or the seller in a private personal deal and appealing to the law, to be made whole, in case of injury, or through a third person armed with a directive which converts the transaction into a public or communal matter. Our constant choice is between socialization and civilization. If we choose to be militant we must be controlled by directives through a third party; if we choose to be decent we can live in freedom under the law; there is no middle ground.

A militant person joins a machine to force another to serve him. He looks on himself as a cog in a wheel and limits his activities to assigned duties in socialization at the grasping collectivistic level of the ego. A decent person looks on himself as the wheel and is willing to serve another individual by all the talent and skill he possesses in civilization at the economical altruistic level of the super ego.

Harvey Cushing would probably not have established single service trade school training in this country if he had foreseen that the medical profession would regress to medieval authoritarianism as a result. We must not mistake militancy for sincerity or allow the boorish boasts of bound boys to pass for professional competence when it is merely a defense mechanism used to cover their lack of integrative ability.

Mount Carmel Mercy Hospital is to be congratulated on maintaining a form of civilization far beyond the achievement of the majority of our hospitals that have been bound to a single standardization. They too have failed to separate the men from the boys by instituting "the table of organization" which is the wheel on which the single service cogs are bound as opposed to allowing a free medical market. The tradition of voluntary hospitals is to treat the doctor and the patient as guests of the hospital at all times. They have succeeded in introducing the socializing third party which continues to price a larger number of people out of the hospital market. This process can only continue to complete nationalization. Organized medicine must rehabilitate to civilization as the Supreme Court of the United States has in reaffirming "the doctrine of civilization" in the Beelo case.

The multiple service doctor is the sensitive idealistic adult who looks on himself as the wheel but who is willing to add an additional cog when the need arises. He is capable of operating the free medical market of civilization.

M. W. STEVENS, M.D., Portland, Ore.

POSTGRADUATE COURSES FOR VETERAN AND CIVILIAN PHYSICIANS

Compiled by the Council on Medical Education and Hospitals for Period July 1, 1947 to Jan. 15, 1948

(Concluded from page 634)

Medical schools, hospitals, state medical societies and other medical educational institutions and organizations are providing the Council with a growing body of information on courses designed primarily to meet the needs of returning medical officers. These have been incorporated into the lists on these pages. They are not specifically designated for veterans, since most if not all of them may also be open to interested civilian physicians. Furthermore, all courses listed which were not designed primarily for physician veterans are also open to qualified returning medical officers.

Note that each course is listed only once, without cross indexing, so that in some instances a prospective student should look under more than one heading for a desired course.

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Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Columbia Presbyterian Medical Center	Symposium on Neurology and Psychiatry	9 weeks, full time, October 6-December 12, 1947	250.00
	Advanced Neurology	13 weeks, full time, January 5-April 2, 1948	150.00
	Advanced Neurology	13 weeks, full time, October 6-December 30, 1947	150.00
	Clinical Electroencephalography and Electromyography	3 months, full time, between October 1, 1947 and March 31, 1948	150.00
At: Montefiore Hospital	Neuropsychiatry	4 weeks, part time, November 10-December 6, 1947	75.00
At: Mount Sinai Hospital	Applied Neuroanatomy and Neuropathology	7 months, part time, October 6, 1947-April 26, 1948	140.00
	Advanced Applied Neuroanatomy and Neuropathology	6 months, part time, October 9, 1947-April 29, 1948	100.00
	Recent Advances in Neurology and Psychiatry	5 days, full time, December 8-12, 1947	60.00
	Psychiatry in General Medicine	20 weeks, part time, January 6-May 18, 1948	100.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Neurology	1 month, full time, arranged	200.00
	3 year Comprehensive Course in Psychoanalysis	3 years, October 1947	500.00
	Introduction to Psychoanalysis	10 sessions, once a week, October 13, 1947	30.00
	Readings in Psychoanalytic Literature	15 sessions, every two weeks, per sem. October 1947	40.00
	Child Psychiatry	10 sessions, once a week, October 10, 1947	30.00
New York State Department of Health, 76 State St., Albany 7 At: School for Corrective Motor Education, East Hampton, L. I.	Special Phases in Diagnosis, Evaluation, Treatment and Training of Cerebral Palsy Patients	Minimum 2 weeks, arranged	None [23]
At: Neurological Institute, New York	Special Phases in Diagnosis, Evaluation, Treatment and Training of Cerebral Palsy Patients	Minimum 2 weeks, arranged	None [23]
At: Neuro-Psychologic Rehabilitation Institute, Philadelphia, Pa.	Special Phases in Diagnosis, Evaluation, Treatment and Training of Cerebral Palsy Patients	Minimum 2 weeks, arranged	None [23]
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Neurological and Psychiatric Diagnosis and Treatment in General Practice	2 weeks, full time, December 8-20, 1947	100.00
New York University College of Medicine, 477 First Ave., New York 16 At: Bellevue Hospital	Psychiatry and Neurology	8 weeks, full time, September 15, 1947	250.00
Duke University School of Medicine, Durham, N. C.	Neuropsychiatry	3 months or longer, full time, arranged per mo.	50.00
	Neurosurgery	3 months or longer, full time, arranged per mo.	50.00
Philadelphia Psychoanalytic Institute, 111 N. 49th St., Philadelphia At: Bellevue-Stratford Hotel	Psychopathology of Childhood	12 sessions, October 14, 1947-June 1, 1948	12.00
	The Emotional Development of the Child	10 sessions, October 13, 1947-May 10, 1948	10.00
	Orientation Course on Normal Behavior	10 sessions, September 23, 1947-June 8, 1948	10.00
	The Relation between the Functions of the Teacher and of the Psychoanalyst	5 sessions, September 16, 1947 May 4, 1948	5.00
At: Places to be arranged	Professional School Courses (on theory, therapeutic applications and practice of psychoanalysis)	Varies for all courses	284.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4 At: Affiliated Institutions	Neurology, Psychiatry (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
	Clinicobiologic Neurology and Psychiatry [2]	10 weeks, full time	300.00
University of Texas Medical Branch, 912 Avenue B, Galveston	Technical Procedure of the Neurological Examination	Arranged	Not given
NEUROSURGERY			
University of Wisconsin Medical School, 418 N. Randall St., Madison	Neurosurgery for Specialists [2]	2-6 months, arranged per month	100.00
NUTRITION			
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Nutrition	1 month, arranged	150.00
University of North Carolina School of Medicine, Chapel Hill	Nutrition	Not given, arranged	25.00
Duke University School of Medicine, Durham, N. C.	Nutrition	3 months or longer, full time, arranged per month	50.00
OBSTETRICS AND GYNECOLOGY			
Alabama State Health Department and Jefferson County Health Department, Birmingham At: Slossfield Maternity Center	Refresher Course in Obstetrics and Gynecology	3 days, September 1947	15.00
	Institute for Negro Physicians (Obstetrics)	3 days, full time, September 1947	15.00
College of Medical Evangelists Graduate School of Medicine, Boyle and Michigan Ave., Los Angeles	Basic Sciences in Obstetrics and Gynecology	33 weeks, full time, October 1, 1947-June 11, 1948	500.00 plus nominal fees
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33 At: Los Angeles City Health Department Maternity Division	Clinical Obstetrics (Course 757)	12 weeks, part time, special arrangement	50.00
At: Los Angeles County Hospital	Obstetrics and Gynecology (Course 753)	2 weeks, full time, October 1947	100.00
University of California Medical School, San Francisco 22 At: University of California Medical Center	Gynecology and Obstetrics. Pathology-Smear; Technique Cancer of Uterus, Stomach, Urinary Tract, Lungs.	2 weeks, full time, Aug. 4-15, 1947 full course	115.00
		mornings	80.00
		afternoons	65.00
	Obstetrics and Gynecology	5 days, full time, September 1-5, 1947	35.00
Chicago Maternity Center, 1336 Newberry Ave., Chicago	Assistant-residency in Obstetrics	4-6 months, continuously	None
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Obstetrics	2 weeks, full time, September 8, 1947	150.00
	Operative and Office Gynecology	2 weeks, full time, September 22, 1947	150.00
	Personal Course in Gynecological Surgery	4 weeks, part time, July 10, 1947	80.00
	Personal Course in Gynecological Surgery	4 weeks, part time, September 4, 1947	80.00
	Practical and Didactic Course in Office Gynecology	4 weeks, part time, July 9, 1947	80.00
	Practical and Didactic Course in Office Gynecology	4 weeks, part time, September 3, 1947	80.00
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City	Obstetrics and Gynecology	4 days, November 17-20, 1947	20.00
University of Maryland School of Medicine, Lombard and Greene St., Baltimore	Review of Gynecology, Oncology and Female Urology	10 weeks, full time, arranged	125.00
	Review Obstetrics and Gynecology	6 weeks, full time, arranged	150.00
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave., Brooklyn 16	Complications of Pregnancy	8 sessions, twice a week, October 7, 1947	20.00
	Prenatal Care	8 sessions, once a week, October 16, 1947	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Margaret Hague Maternity Hospital, Jersey City, N. J. At: Mount Sinai Hospital	Observation Course in Obstetrics	1 month, full time, 1st of every month	100.00
	Obstetrics—Internship Training	3 months, full time, 1st of every month except November and December	350.00
	Recent Advances in Gynecology	6 days, full time, December 15-20, 1947	65.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Clinical and Operative (cadaver) Gynecology	6 weeks, arranged	175.00
	Combined Obstetrics and Gynecology	2 months, full time, October 1, 1947	250.00
At: Beth Israel Hospital	Gynecology	16 weeks, part time, August 1947	250.00
	Gynecology	16 weeks, part time, December 1947	250.00
At: Lenox Hill Hospital	Histopathology for Gynecologists	5 weeks, part time, September 30, 1947	50.00
	Histopathology for Gynecologists	5 weeks, part time, January 6, 1948	50.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Gynecology—Diagnosis and Office Treatment	15 sessions, part time, September 29-October 31, 1947	75.00
	Gynecology—Diagnosis and Office Treatment	15 sessions, part time, November 10-December 12, 1947	75.00
	Gynecology, Diagnosis and Office Treatment	10 sessions, part time, December 1-22, 1947	50.00
	Gynecological Pathology (Restricted to Gynecologists and Pathologists) [2]	16 weeks, part time, September 24, 1947-January 21, 1948	100.00
	Gynecological Pathology (Restricted to Gynecologists and Pathologists) [2]	16 weeks, part time, January 6-February 26, 1948	100.00
	Seminar in Gynecology	2 months, full time, October 1-November 29, 1947	300.00
	Surgical Anatomy as Applied to Operative Gynecology (Cadaver) Limited to Surgeons [2]	12 sessions, part time, arranged	200.00
Duke University School of Medicine, Durham, N. C.	Obstetrics and Gynecology	3 months or longer, full time, arranged per month	50.00
University of Cincinnati College of Medicine, Eden and Bethesda Ave., Cincinnati, Ohio	Seminar in Obstetrics for the General Physician	1 month, twice a week, October 1947	15.00
Oklahoma State Medical Association Postgraduate Committee, 210-212 Plaza Court, Oklahoma City 3 At: Principal towns and cities in State	Gynecology	10 weeks, one night a week, not given	15.00
Oregon State Medical Society and Oregon State Board of Health, Portland	Obstetrics Refresher Course	Arranged, tentatively Fall 1947	Not given
University of Oregon Medical School, 3181 S.W. Marquam Hill Road, Portland 1	Gynecology	5 days, full time, October 27-31, 1947	50.00
Hahnemann Medical College and Hospital of Philadelphia, 235 N. 15th St., Philadelphia	Obstetrics	2 months, full time, July 1, 1947-January 15, 1948	200.00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Gynecology, Obstetrics (Basic Studies)	8 months, full time, October 1947-May 1948	800.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	OBSTETRICS AND GYNECOLOGY—Continued		
University of Tennessee College of Medicine, Memphis 3	Clinical Practice Course of Postgraduate Instruction in the Control of Pain in Childbirth with Lectures and Demonstrations in Obstetrics	2 weeks, November 1947 and every 2 weeks thereafter	150.00
Meharry Medical College, 1005 18th Ave. North at Meharry Blvd., Nashville, Tenn.	Gynecology-Obstetrics	6 months, full time, July 1, 1947-January 15, 1948	per qtr. 125.00
Southwestern Medical College of Southwestern Medical Foundation, 2211 Oak Lawn, Dallas, Tex.	Postgraduate Course in Obstetrics and Gynecology in Preparation for Specialty Board Examination	31 weeks, part time, September 1947-June 1948	10.00
University of Wisconsin Medical School, 418 N. Randall St., Madison	Obstetrics and Gynecology for Specialists [2]	2-6 months, arranged	per mo. 100.00
	OPHTHALMOLOGY		
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33 At: Los Angeles County Hospital	Basic Ophthalmology (Course 752)	4 months, full time, October 1947	600.00
University of California Medical School, San Francisco 22 At: Medical Center	Postgraduate Course in Ophthalmology	5 days, full time, September 15-19, 1947	60.00
Children's Memorial Hospital, 707 Fullerton Ave., Chicago 14	Postgraduate Conference in Neuromuscular Anomalies of the Eyes [2]	1 week, second week in November 1947	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Ophthalmology	2 weeks, part time, every 2 weeks	50.00
Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11	Ophthalmology—Basic Course	8 months, full time, October 16, 1947-June 28, 1948	500.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minn.	Ophthalmology-Otolaryngology (Home Study Correspondence Courses)	9 months, September 1, 1947-June 30, 1948	10.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Montefiore Hospital	Bacteriology of the Eye and External Diseases	2½ months, part time, October 6-December 22, 1947	45.00
	Elementary Ophthalmoscopy	8 weeks, part time, January 5-March 1, 1948	30.00
	Embryology of the Eye	7 weeks, part time, October 8-November 26, 1947	40.00
	Extra-ocular Muscles	8 weeks, part time, October 9-December 4, 1947	30.00
	Histopathology of the Eye	2 months, part time, October 9-December 22, 1947	55.00
	Physiological Optics	2 months, part time, October 7-December 9, 1947	45.00
At: Mt. Sinai Hospital	Ophthalmoscopy (Elementary) (Ophthalmology 39B)	3 months, part time, September 25-December 22, 1947	25.00
	Ophthalmoscopy (Elementary) (Ophthalmology 39A)	2 months, part time, October 6-December 22, 1947	25.00
	Ophthalmoscopy—Advanced Course (Ophthalmology PM 38)	18 hours, October 8-December 24, 1947	40.00
	Industrial Ophthalmology (Ophthalmology PM 41)	12 weeks, part time, October 7-December 23, 1947	25.00
	Slit Lamp Microscopy of the Living Eye [2]	7 weeks, part time, October 8-November 26, 1947	30.00
	Ophthalmic Surgery	2 months, part time, October 8-December 10, 1947	90.00
	Refraction [3]	11 weeks, part time, October 10-December 26, 1947	40.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Anomalies of the Ocular Muscles [2] (Restricted to Ophthalmologists)	5 days, full time, Oct. 27-31, 1947	75.00
	Differential Diagnosis with the Slit Lamp [2] (Restricted to Ophthalmologists)	5 days, part time, Nov. 10-14, 1947	50.00
	Motor Anomalies of the Eye [2] (Restricted to Ophthalmologists)	6 days, full time, Oct. 20-25, 1947	100.00
	Ophthalmic Neurology [2] (Restricted to Ophthalmologists)	5 days, part time, Nov. 10-14, 1947	50.00
	Surgery of the Eye [2] (Restricted to Ophthalmologists)	6 days, full time, Nov. 3-8, 1947	100.00
New York University, 477 First Ave., New York 16 At: New York Eye and Ear Infirmary	Allergy of the Eyes and Upper Respiratory Tract [2]	12 lectures and 12 clinic sessions, arranged	100.00
	Anatomy and Physiology [2]	4 weeks, part time, each month if 4 or more students	50.00
	Bacteriology, Serology, Immunology [2]	Arranged, October 1947	50.00
	Embryology [2]	1 month, part time, arranged	50.00
	External Eye Diseases [2]	1 month, part time, every month if enough students	50.00
	External Eye Diseases—Ocular Therapy [2]	1 month, part time, whenever 4 students	50.00
	Extra Ocular Muscles [2]	1 month, 3 afternoons a week, each month whenever 4 students	50.00
	Glaucoma [2]	8 weeks, part time, arranged	50.00
	Histopathology of the Eye [2]	12 weeks, once a week, January-March 1948	100.00
	Neuro-Ophthalmology [2]	2 weeks, part time, arranged	50.00
	Ocular Muscles [2]	1 month, part time, arranged	50.00
	Operative Eye Surgery [2]	1 month, 3 nights a week, every month if enough students	100.00
	Ophthalmoscopy [2]	1 month, twice a week, every month	50.00
	Perimetry [2]	4 weeks, once a week, arranged	50.00
	Physiologic Optics [2]	6 weeks, part time, October 1947	100.00
	Plastic Eye Surgery [2]	1 month, 3 afternoons a week, November 1947	100.00
	Refraction [2]	2 months, 2 nights a week, October 1947 (tentative)	100.00
	Refraction [2]	2 months, 2 nights a week, January 1948 (tentative)	100.00
	X-Ray [2]	6 hours, arranged	50.00
	Slit Lamp Microscopy [2]	1 month, part time, October 1947	50.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	OPHTHALMOLOGY—Continued		
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Ophthalmology (clinical)	6 weeks, October 1, 1947	50.00
	Ophthalmology, Clinical, Operative (Cadaver) and Refraction	3 months, October 1, 1947-January 2, 1948	275.00
	Refraction	6 weeks, part time, arranged	100.00
University of Rochester School of Medicine and Dentistry, Crittenden Blvd., Rochester, N. Y.	Ophthalmology	3½ days, full time, July 28-31, 1947	40.00
Duke University School of Medicine, Durham, N. C.	Ophthalmology	3 months or longer, full time, arranged per month	50.00
Cleveland Clinic, Euclid Ave. at East 93rd St., Cleveland 6	Diseases of Eye, Ear, Nose and Throat	3 days, first week in December 1947	Not given
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Ophthalmology (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
Virginia Society of Ophthalmology and Otolaryngology, University Station, Charlottesville At: Medical College of Virginia, Richmond	Postgraduate Course in Ophthalmology and Otolaryngology	4 days, December 1947 full course part	25.00 15.00
	ORTHOPEDIC SURGERY		
State University of Iowa School of Medicine, Iowa City	Orthopedic Surgery	10 months, full time, September 1, 1947-July 1, 1948	300.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Functional Anatomy in Relation to Orthopedics	10 days, part time, Sept. 22-Oct. 3, 1947	75.00
	Orthopedics in General Practice	6 days, full time, Nov. 3-8, 1947	60.00
	Seminar in Orthopedic Surgery [2] (Restricted to Surgeons)	10 days, full time, Jan. 5-16, 1948	125.00
Duke University School of Medicine, Durham, N. C.	Orthopedic Surgery	3 months or longer, full time, arranged per month	50.00
Cleveland Clinic, Euclid Ave. at East 93rd. St., Cleveland 6	Bunts Institute (Orthopedics)	1 day, October 1947	Not given
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Orthopedics (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
	OTOLARYNGOLOGY		
College of Medical Evangelists, Boyle and Michigan Ave., Los Angeles	Basic Sciences in Otolaryngology	33 weeks, full time, October 1, 1947-June 11, 1948	500.00 plus nominal fee
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Otolaryngology	2 weeks, part time, every 2 weeks	50.00
University of Illinois College of Medicine, 912 S. Wood St., Chicago 12	Otolaryngology Refresher [2]	1 or 2 weeks, September 1947 per week	50.00
State University of Iowa College of Medicine, Iowa City	Otolaryngology	5 days, December 1-5, 1947	75.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minn.	Ophthalmology-Otolaryngology (Home Study Course)	9 months, September 1, 1947-June 30, 1948	10.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32	Otolaryngology	3-6 months, full time, first day of any month	150.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Otolaryngologic Procedures	1 month, part time, arranged	100.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Symposium on Otolaryngology [2] (Restricted to Otolaryngologists)	2 weeks, full time, Nov. 10-22, 1947	150.00
New York University, 477 First Ave., New York At: New York Eye and Ear Infirmary	Anatomy Temporal Bone [2]	1 month, part time, arranged	60.00
	Bacteriology, Serology, Immunology [2]	2 weeks, part time, arranged	50.00
	Bacteriology, Serology and Immunology [2]	1 month, part time, arranged	50.00
	X-Ray [2]	6 hours, arranged	50.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Otolaryngology and Ophthalmology (clinical)	6 weeks, October 1, 1947-January 2, 1948	100.00
	Clinical Otolaryngology	6 weeks, October 1, 1947-January 2, 1948	75.00
Duke University School of Medicine, Durham, N. C.	Otolaryngology	3 months or longer, full time, arranged per month	50.00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Otolaryngology (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
Virginia Society of Ophthalmology and Otolaryngology, University Station, Charlottesville At: Medical College of Virginia, Richmond	Postgraduate Course in Ophthalmology and Otolaryngology	4 days, December 1947 full course part	25.00 15.00
	OTOLOGY		
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Histopathology of the Ear	5½ weeks, part time, October 21-November 28, 1947	50.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Advanced Otology	Arranged	250.00
New York University College of Medicine, 477 First Ave., New York 16 At: New York Eye and Ear Infirmary	Anatomy and Physiology [2]	4 weeks, 3 hours a week each month if 4 or more students	50.00
	Bacteriology of the Ear [2]	4 weeks, 4 hours a week, arranged	50.00
	Bacteriology, Serology, Immunology [2]	2 weeks, part time, October 1947	50.00
	Clinical Otology [2]	4 weeks, 4 hours a week, arranged	75.00
	Mastoid Surgery and Nasal Sinuses [2]	1 month, 4 hours a week, arranged	200.00
	Operative Ear Surgery (Cadaver) and Nasal Accessory Sinuses [2]	1 month, part time, arranged	200.00
	OTORHINOLARYNGOLOGY		
University of California Medical School, San Francisco 22 At: Medical Center	Postgraduate Course in Otorhinolaryngology	5 days, full time, September 8-12, 1947	60.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Combined Eye, Ear, Nose and Throat Course	3 months, October 1, 1947-January 2, 1948	600.00
	Combined Eye, Ear, Nose and Throat Course	3 months, January 2, 1948-April 1948	600.00
	Combined Eye, Ear, Nose and Throat Course	9 months, October 1, 1947	1,000.00
Cleveland Clinic, Euclid Ave. at East 93rd St., Cleveland 6, Ohio	Diseases of Eye, Ear, Nose and Throat Course	3 days, first week in December 1947	Not given
Washington State Medical Association, 218 Cobb Bldg., Seattle	Eye, Ear, Nose and Throat Course	2 weeks, August 1947	Not given

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course		Registration Fee and/or Tuition
	PATHOLOGY			
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Pathology and Laboratory Medicine	10 weeks, part time, October 1, 1947		100.00
	2 Weeks Course Surgical Pathology	2 weeks, full time, every 2 weeks		150.00
	1 Month Course Surgical Pathology	1 month, full time, every month		250.00
U-Maryland School of Medicine, Lombard and Greene St., Baltimore	Training in General Pathology	6 months, full time, arranged		150.00
	Training in General Pathology	1 year, full time, arranged		300.00
	Neuropathology [2]	6 months, full time, arranged		210.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Medical Pathologic Conference	1 quarter, 1 morning a week, July 1947	per quarter	10.00
	Medical Pathologic Conference	1 quarter, 1 morning a week, October 1947	per quarter	10.00
	Pathology Seminar	1 quarter, part time, July 1947		Not given
	Pathology Seminar	1 quarter, 2nd and 4th Monday afternoons, October 1947	per quarter	10.00
	Pathology of Neoplasms	1 quarter, 1 afternoon week, October 1947	per quarter	20.00
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis 10	Graduate Course in Pathology	8-11 months, beginning between July 1, and October 1, 1947	per month	62.50
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32	General and Special Pathology	14 weeks, part time, October 18, 1947 January 24, 1948		60.00
New York Medical College Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Clinical Pathology	26 hours, arranged		200.00
	Pathology	16 weeks, part time, arranged		200.00
New York Polyclinic Medical School and Hospital, 341-352 W. 50th St., New York	Pathology and Bacteriology	Arranged		Not given
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Gross and Microscopic Pathology	6 weeks, part time, Sept. 15-Oct. 24, 1947		100.00
	Gynecological Pathology (Restricted to Gynecologists and Pathologists) [2]	16 weeks, part time, Sept. 24, 1947-Jan. 21, 1948		100.00
	Gynecological Pathology (Restricted to Gynecologists and Pathologists) [2]	16 weeks, part time, Jan. 6-Feb. 26, 1948		100.00
	Surgical Pathology (Restricted to Surgeons and Pathologists) [2]	15 weeks, part time, Sept. 16-Dec. 30, 1947		200.00
New York University College of Medicine, 477 First Ave., New York 16 At: Lenox Hill Hospital	Pathology for Surgeons	5 weeks, part time, September 29, 1947		50.00
	Pathology for Surgeons	5 weeks, part time, January 5, 1948		50.00
University of North Carolina School of Medicine, Chapel Hill	Pathology	Arranged		25.00
Duke University School of Medicine, Durham, N. C.	Pathology	3 months or longer, full time, arranged	per month	50.00
	Pathological Research	3 months or longer, full time, arranged	per month	50.00
	Gross and Microscopic Conferences on Surgical Pathology	3 months or longer, full time, arranged	per month	50.00
	Systematic Review of General and Surgical Pathology	3 months or longer, full time, arranged	per month	50.00
	Staff Appointment in Pathology	3 months or longer, full time, arranged	per month	50.00
University of Texas Medical Branch, 912 Avenue B, Galveston	Surgical Pathology	Arranged		Not given
	PEDIATRICS			
State Department of Health, Hartford, Conn.	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously		None [19]
At: Moodus	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously		None [19]
At: North Grosvenordale	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously		None [19]
At: Old Lyme	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously		None [19]
At: Waterbury	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously		None [19]
At: West Hartford	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously		None [19]
Emory University School of Medicine, 50 Armstrong St., Atlanta, Ga. At: Grady Memorial and Egleston Hospital	Pediatrics	3 months to 1 year, arranged	per quarter	125.00
Children's Memorial Hospital, 707 Fullerton Ave., Chicago	Postgraduate Course in Pediatrics	4 weeks, October 1947		100.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Course in Pediatrics	2 weeks or 1 month, full time, every two weeks	2 weeks 1 month	60.00 100.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Children's Guidance Clinic	1 quarter, part time, July 1947		Not given
	Children's Guidance Clinic	1 quarter, part time, October 1947		Not given
University of Minnesota Medical School, Minneapolis 14	Diseases of Children	Not decided, arranged		Arranged
	Pediatrics	6 weeks, full time, arranged		Arranged
Long Island College of Medicine, Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn 16	Clinical Pediatrics	10 sessions, twice a week, October 8, 1947		20.00
Columbia University, 630 W. 168th St., New York At: Mount Sinai Hospital	Allergy in Children (PM 31)	8 weeks, part time, October 10-November 28, 1947		30.00
	Clinical Pediatrics	10 weeks, part time, October 7-December 16, 1947		80.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York	Clinical Pediatrics	1-9 months, all year	1 month 3 months 6 months 9 months	150.00 250.00 450.00 650.00
	Pediatrics	4 weeks, part time, arranged		Not given

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Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	PEDIATRICS—Continued		
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Allergy for Pediatricians (Restricted to Pediatricians)[2]	5 days, full time, Oct. 6-10, 1947	75.00
	Cardiology for Pediatricians (Restricted to Pediatricians)[2]	5 days, full time, Dec. 8-12, 1947	75.00
	Clinical Pediatrics	4 weeks, full time, Oct. 13-Nov. 8, 1947	150.00
	Clinical Pediatrics	4 weeks, full time, Jan. 5-31, 1948	150.00
	Dermatology and Syphilology for Pediatricians (Restricted to Pediatricians)[2]	5 days, full time, Sept. 29-Oct. 3, 1947	75.00
	Neurology and Psychiatry for Pediatricians (Restricted to Pediatricians)[2]	2 weeks, full time, Oct. 13-25, 1947	100.00
	Practical Clinical Pediatrics	4 weeks, full time, Nov. 10-Dec. 5, 1947	125.00
	Symposium on Recent Advances in Pediatrics	6 days, full time, Nov. 17-22, 1947	75.00
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital At: Lenox Hill Hospital	Pediatrics	12 weeks, part time, September 30, 1947	Veterans 75.00 Non-Veterans 100.00
Duke University School of Medicine, Durham, N. C.	Pediatrics	8 weeks, part time, fall 1947	50.00
	Pediatrics	3 months or longer, full time, arranged	per month 50.00
Southern Pediatric Seminar, Saluda, N. C.	Southern Pediatric Seminar	2 weeks, July 14-28, 1947	Not given
University of Cincinnati College of Medicine, Eden and Bethesda Aves., Cincinnati, Ohio	Pediatrics	3-4 months, continuously	per month 30.00
Oregon State Medical Society and Oregon State Board of Health, Portland	Refresher Course in Pediatrics	Arranged, Fall 1947 (tentative)	Not given
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia	Pediatrics (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
Meharry Medical College, 1005 18th Av. North at Meharry Blvd., Nashville, Tenn.	Pediatrics	6 months, full time, July 1, 1947-January 15, 1948	per quarter 125.00
Vanderbilt University School of Medicine, Nashville, Tenn.	Pediatrics	1-3 months, October 1947	3 months 100.00
University of Texas Medical Branch, 912 Avenue B, Galveston	Pediatrics	1 week, October 1947	25.00
Washington State Medical Association, 218 Cobb Bldg., Seattle	Intensive Postgraduate Course in Pediatrics	2 weeks, July 14-27, 1947	Not given
University of Wisconsin Medical School, 418 N. Randall St., Madison	Course in Pediatrics for Specialists[2]	2-6 months, arranged	per month 100.00
	PHARMACOLOGY		
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Pharmacology Seminar	1 quarter, part time, July 1947	Not given
	Pharmacology Seminar	1 quarter, once a week, October 1947	per quarter 10.00
	Pharmacology Survey	1 quarter, July 1947	Not given
University of North Carolina School of Medicine, Chapel Hill	Pharmacology	September 1947-March 1948	25.00
Duke University School of Medicine, Durham, N. C.	Pharmacology	3 months or longer, full time, arranged	per month 50.00
	Recent Advances in Pharmacology	10-12 weekly seminars, part time, arranged	per month 50.00
	PHYSICAL MEDICINE		
University of Southern California School of Medicine, 1200 North State St., Los Angeles 33 At: Los Angeles County Hospital	Principles of Physical Medicine (Course 775)	12 weeks, full time, September 15, 1947	250.00
	Physical Medicine in the Treatment of Anterior Poliomyelitis (Course 776)	4 weeks, full time, July 7, 1947	100.00
	Advanced Clinical Practice in Physical Medicine (Course 779)	12 months, full time, September 15, 1947	1,000.00
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City	Physical Medicine	3 days, December 8-10, 1947	15.00
American Congress of Physical Medicine, 30 N. Michigan Ave., Chicago At: Hotel Pennsylvania, New York	Instruction Seminar	4 days, September 4-7, 1947	1 lecture 2.00 full semester 15.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	General Course in Physical Medicine	4 weeks, part time, arranged	100.00[4]
New York University College of Medicine, 477 First Ave., New York At: Bellevue Hospital and Institute for Crippled and Disabled	Physical Medicine	12 weeks, part time, Fall 1947	200.00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia	Physical Medicine (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
University of Wisconsin Medical School, 418 N. Randall St., Madison	Physical Medicine for Specialists[2]	2-6 months, arranged	per month 100.00
	PHYSIOLOGY		
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Physiology Survey	1 quarter, part time, October 1947	Not given
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Physiology of the Digestive Tract	3 weeks, part time, December 1-23, 1947	40.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Physiology and Chemistry of the Gastrointestinal Tract, Digestion	1 month, arranged	150.00
	Physiology of the Cardio-vascular System and Blood	1 month, arranged	75.00
	Physiology of the Endocrine System	1 month, arranged	75.00
	Physiology of the Special Senses	1 month, arranged	75.00
	Physiology of the Nervous System	2 weeks, arranged	50.00
	Physiology of Respiration	1 month, arranged	75.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Normal and Pathological Physiology — Functional and Chemical Aspects	10 days, full time, Sept. 22-Oct. 3, 1947	100.00
	Normal and Pathological Physiology — Functional and Chemical Aspects	8 sessions, part time, Jan. 7-Feb. 25, 1948	30.00
New York University Medical College, 477 First Ave., New York 16	Physiology	Not given; twice a week, Fall 1947	Veterans 65.00 Non-Veterans 75.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	PHYSIOLOGY—Continued		
University of North Carolina School of Medicine, Chapel Hill	Physiology	Arranged	25.00
Duke University School of Medicine, Durham, N. C.	Physiology	5 months or longer, full time, arranged per month	50.00
	Recent Advances in Physiology	10-12 weekly seminars, part time, arranged per month	50.00
	POLIOMYELITIS		
University of Southern California School of Medicine, 1200 North State St., Los Angeles 33 At: Los Angeles County Hospital	Physical Medicine in the Treatment of Anterior Poliomyelitis (Course 776)	4 weeks, full time, July 7, 1947	100.00
Georgia Warm Springs Foundation, Warm Springs At: Jewish Hospital	Poliomyelitis	2 weeks, first Monday in October 1947	Not given
	PROCTOLOGY		
Long Island College of Medicine Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn 16 At: Jewish Hospital	Proctology	8 sessions, twice a week, October 6, 1947	25.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Proctology and Gastroenterology (clinical)	6 weeks, October 1, 1947-January 2, 1948	100.00
	Combined Proctology and Gastroenterology (clinical) and operative (cadaver) Proctology	6 weeks, October 1, 1947-January 2, 1948	200.00
New York University College of Medicine, 477 First Ave., New York At: Bellevue Hospital	Proctology	8 weeks, part time, September 29, 1947 Veterans Non-Veterans	100.00 150.00
	PUBLIC HEALTH		
Yale University School of Medicine, 333 Cedar St., New Haven, Conn.	Public Health Administration	9 months, full time,[20] September 1947-June 1948	450.00
Tulane University of Louisiana, 1430 Tulane Ave., New Orleans	Intramural Training in Tropical Medicine and Public Health	9 months, September 2, 1947	500.00
Johns Hopkins University, School of Hygiene and Public Health, 615 N. Wolfe, Baltimore, Md.	Public Health	8 months, full time, September 29, 1947-May 1948	600.00
University of Michigan School of Public Health, Ann Arbor	Health Education	3 days, July 7-9, 1947	Not given
	Public Health	4 months, September 22, 1947-January 17, 1948	Not given
University of Minnesota, School of Public Health, Minneapolis 14	Course for Health Officers	9 months, full time, September 1947-June 1948 Residents Non-residents	30.00 75.00
Albany Medical College, 47 New Scotland Ave., Albany, N. Y., and New York State Dept. of Health	Extension Course for Graduate II Health Officers	1 year, continuously	40.00
Columbia University School of Public Health, 630 W. 168th St., New York 32	1. Public Health; 2. Hospital Administration	1 year minimum, not given Year	490.00
New York State Department of Health, 76 State St., Albany 7	Fellowship in Public Health (6 months Field Training; 8 months Academic Training)	14 months, full time, continuous	None [24]
University of North Carolina School of Medicine, Chapel Hill	Public Health	1 year, full time, September 1947-June 1948 per quarter	100.00
Duke University School of Medicine, Durham, N. C.	Public Health	3 months or longer, full time, arranged per month	50.00
Vanderbilt University School of Medicine, Nashville, Tenn.	Master of Public Health	4 months, beginning September 1947 per semester	200.00
	RADIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Roentgenology	2 weeks, full time, third Monday of every month	70.00
	Lecture and Clinical Roentgenology	2 weeks, full time, first Monday of every month	125.00
	X-Ray Therapy	2 weeks or 1 month, full time 2 weeks 1 month	100.00 200.00
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City	Radiology and Cancer	3 days, January 19-21, 1948	15.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Medical X-Ray Conference	1 quarter, 1 afternoon a week, July 1947 per quarter	10.00
	Medical X-Ray Conference	1 quarter, 1 afternoon a week, October 1947 per quarter	10.00
	Radiology Seminar Conference	1 quarter, 1 evening a week, July 1947	20.00
	Radiology Seminar Conference	1 quarter, 1 evening a week, October 1947	10.00
	Radiology Physics and Therapy	1 quarter, 1 evening a week, October 1947 per quarter	10.00
University of Minnesota Medical School, Minneapolis 14 At: Center for Continuation Study	Continuation Course in Radiology of the Chest	1 week, December 1947 (tentative)	Arranged
	Radiologic Diagnosis	2-4 weeks, not decided	Arranged
American Roentgen Ray Society, University Hospital, Iowa City, Ia. At: Haddon Hall, Atlantic City, N. J.	Instructional Course in Diagnostic and Therapeutic Radiology and Radiation Physics [2]	4 days, part time, September 17-20, 1947	5.00
Long Island College of Medicine, Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn 16 At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Radiology	8 sessions, once a week, October 8, 1947	20.00
At: Jewish Hospital	X-Ray Diagnosis	10 sessions, once a week, October 14, 1947	25.00
At: Long Island College of Medicine	Biologic Fundamentals of Radiation Therapy	10 sessions, once a week, October 7, 1947	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Affiliated Hospitals	Radiological Physics	2 months, part time, September 24-November 21, 1947	25.00
	Symposium on Diagnostic Radiology [2]	10 weeks, full time, September 29-December 5, 1947	250.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Diagnostic Roentgenology	Every 6 weeks, half time except during July and August 1947	150.00
	Radium and Roentgen Therapy	6 weeks half time, every 6 weeks except during summer months	150.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Radiology	3 months, October 1, 1947-January 2, 1948	300.00
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital	Roentgenology	8 weeks, part time, 2 afternoons a week, September 30, 1947	50.00
At: City Hospital	Diagnostic Radiology	12 weeks, part time, 3 afternoons a week, September 29, 1947	100.00
Duke University School of Medicine, Durham, N. C.	Radiology	3 months, or longer, full time, arranged per month	50.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	RADIOLOGY—Continued		
University of Oregon Medical School, 3181 S.W. Marquam Hill Road, Portland 1	Radiology	5 days, full time, Nov. 10-14, 1947	50.00
American College of Radiology, 20 N. Wacker Drive, Chicago and Philadelphia Roentgen Ray Society, Philadelphia At: Philadelphia	Preceptorships	Arranged at various times	None
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Radiology (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
Meharry Medical College, 1005 18th Av. North at Meharry Blvd., Nashville, Tenn.	Radiology	6 months, July 1, 1947-January 15, 1948 per quarter	125.00
	SURGERY		
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Ave., Los Angeles	Basic Sciences in General Surgery	33 weeks, full time, October 1, 1947-June 11, 1948 plus nominal fees	500.00
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33 At: Los Angeles County Hospital	General Surgery (Course 750)	4 weeks, full time, September 1947	200.00
	General Surgery (Course 755)	8 months, full time, following Course 750	750.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	General Surgery	1 month, full time, July 7, 1947	300.00
	1 Month General Surgery	4 weeks, full time, Aug. 4, 1947	300.00
	General Surgery	4 weeks, full time, Sept. 8, 1947	300.00
	General Surgery	4 weeks, full time, Oct. 6, 1947	300.00
	General Surgery	4 weeks, full time, Nov. 17, 1947	300.00
	General Surgery	4 weeks, full time, Dec. 1, 1947	300.00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, July 21, 1947	150.00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, Aug. 18, 1947	150.00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, Sept. 22, 1947	150.00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, Oct. 20, 1947	150.00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, Nov. 17, 1947	150.00
	Surgical Anatomy on the Cadaver	10 weeks, part time, Oct. 1, 1947	125.00
	Surgery of the Colon and Rectum	1 week, full time, Sept. 15, 1947	100.00
	Surgery of the Colon and Rectum	1 week, full time, Nov. 3, 1947	100.00
	Surgical Diagnosis, Preoperative and Postoperative Care	10 weeks, part time, Oct. 1, 1947	100.00
	Surgical Technique	2 weeks, every 2 weeks	200.00
	Personal Course in Vaginal Surgery	1 week, full time, Sept. 15, 1947	100.00
	Personal Course in Vaginal Surgery	1 week, full time, Oct. 13, 1947	100.00
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City	Continuation Course in Surgical Pathology	12 weeks, once a week, September 25, 1947	50.00
At: University of Kansas Extension Division, Lawrence	Surgical Pathology	10 or 12 weeks, part time, beginning latter part of September or early October 1947	Not given
	Surgical Physiology	10 or 12 weeks, part time, beginning latter part of September or early October 1947	Not given
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Laboratory Surgery	1 quarter, part time, October 1947	Not given
	Surgery Seminar	1 quarter, 1 afternoon a week, July 1947 per quarter	10.00
	Surgery Seminar	1 quarter, 1 afternoon a week, October 1947 per quarter	10.00
Cornell University Medical College, 1300 York Ave., New York 21	Surgical Anatomy [21]	3 weeks, September 2-20, 1947	150.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Gastrointestinal Surgery	Not given, arranged	200.00
	Peritoneoscopy	Not given, arranged	100.00
	Surgical Aspects of Peripheral Vascular Diseases	Not given, arranged	200.00
	Surgical Technique	50 hours, arranged	375.00
	Thoracic Surgery	3 weeks, full time, arranged, Fall 1947	325.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Diagnosis and Treatment of Trauma	6 days, full time, Nov. 17-22, 1947	60.00
	Dissection and Surgical Anatomy (Restricted to Surgeons)[2]	Part time, arranged	150.00
	Normal and Pathological Physiology in Surgery (Restricted to Surgeons)[2]	5 days, full time	55.00
	Review of General Surgery for Surgeons (Restricted to Surgeons)[2]	4 weeks, full time	200.00
	Seminar in Traumatic Surgery (Restricted to Surgeons)[2]	2 weeks, full time, Sept. 8-20, 1947	125.00
	Surgery of the Hand (Restricted to Surgeons)[2]	6 days, full time, Oct. 6-11, 1947	75.00
	Surgical Anatomy as Applied to Colon and Rectal Surgery (Restricted to Surgeons)[2]	Part time, arranged	100.00
	Surgical Anatomy as Applied to General Surgery (Cadaver) (Restricted to Surgeons)[2]	Part time, arranged	200.00
	Surgical Anatomy as Applied to Operative Gynecology (Cadaver)[2]	12 sessions, part time, arranged	200.00
	Surgical Anatomy as Applied to Thoracic (Cadaver) (Restricted to Surgeons)[2]	Part time, arranged	200.00
	Surgical Pathology (Restricted to Surgeons and Pathologists)[2]	15 weeks, part time, Sept. 16-Dec. 30, 1947	200.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	SURGERY—Continued		
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Combined Surgical Course	3 months, October 1, 1947-January 2, 1948	350.00
Duke University School of Medicine, Durham, N. C.	Surgery	3 months or longer, full time, arranged per month	50.00
University of Oregon Medical School, 3181 S.W. Marquam Hill Road, Portland 1	General Surgery	5 days, full time, Sept. 29-Oct. 3, 1947	50.00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Surgery (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
Meharry Medical College, 1005 18th Av. North at Meharry Blvd., Nashville, Tenn.	Surgery	6 months, full time, July 1, 1947-January 15, 1948 per quarter	125.00
Vanderbilt University School of Medicine, Nashville 4, Tenn.	Surgery	1-3 months, October 1947 for 3 months	166.66
Southwestern Medical College of Southwestern Medical Foundation, 2211 Oak Lawn, Dallas, Tex.	Postgraduate Course in Surgery in Preparatiop for Specialty Board Examination	33 weeks, 2 hours a week, September 1947-June 1948	10.00
University of Texas Medical Branch, 912 Avenue B, Galveston	General Surgery	1 week, November 1947	25.00
University of Vermont College of Medicine, Pearl St., College Park, Burlington	Surgery	Minimum 4 weeks, part time, July 1947-January 1948 per year or pro rated	300.00
University of Wisconsin Medical School, 418 N. Randall St., Madison	Surgery Course for Specialists [2]	2-6 months, arranged per month	100.00
	THERAPY		
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City At: University of Kansas Extension Division, Lawrence	General Therapeutics Clinic (tentative)	5 days, October 1947	Not given
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Therapeutic Seminar	1 quarter, part time, July 1947	Not given
	Therapeutic Seminar	1 quarter, part time, October 1947	Not given
Long Island College of Medicine, Medical Society County of Kings, 1313 Bedford Ave., Brooklyn 16 At: Jewish Sanatarium and Hospital for Chronic Diseases	Clinical Therapeutics	12 sessions, twice a week, October 6, 1947	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168 St., New York 32 At: Columbia Presbyterian Medical Center	Physiologic Therapy in Respiratory Diseases	6 days, full time, January 26-31, 1948	40.00
At: Mount Sinai Hospital	Physical Therapy in General Practice	4 months, part time, October 7, 1947-February 10, 1948	85.00
	Recent Advances in Therapy	7 weeks, part time, October 22-December 10, 1947	35.00
University of Oregon Medical School, 3181 S.W. Marquam Hill Road, Portland 1	Applied Therapeutics	5 days, Oct. 13-17, 1947	50.00
University of Texas Medical Branch, 912 Avenue B, Galveston	Electro-shock Therapy	Arranged	Not given
	TROPICAL MEDICINE		
Tulane University of Louisiana, 1430 Tulane Ave., New Orleans 13	Intramural Training in Tropical Medicine and Public Health	9 months, September 2, 1947	500.00
	UROLOGY		
College of Medical Evangelists, Boyle and Michigan Ave., Los Angeles	Basic Sciences in Urology	33 weeks, full time, October 1, 1947-June 11, 1948	500.00 plus nominal fee
Long Island College of Medicine, Medical Society County of Kings, 1313 Bedford Ave., Brooklyn 16 At: Long Island College Hospital	Urology	1 month or longer, October 1, 1947	25.00
James Buchanan Brady Foundation of the New York Hospital, 525 E. 68th St., New York	Postgraduate Course in Urology	6 months, full time, July 1947-January 1948	500.00 [22]
	Postgraduate Course in Urology	6 months, full time, January-July 1948	500.00 [22]
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Advanced Course in Urology (Restricted to Urologists) [2]	2 months, full time, Oct. 1-Nov. 26, 1947	300.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Urology and Allied Subjects	8 months, full time, October 1, 1947	800.00
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital	Urology	6 weeks, part time, September 29, 1947	100.00
Duke University School of Medicine, Durham, N. C.	Urology	3 months, or longer, arranged per month	50.00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Urology (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
	VENEREAL DISEASES		
U. S. Public Health Service and Arkansas State Board of Health, Hot Springs National Park, Ark.	Ninth Postgraduate Course in The Management and Control of the Venereal Diseases	3 weeks, full time, Fall 1947	None
University of California Medical School, San Francisco 22	Course in Venereal Diseases	16 weeks, 1 hour a week, September 13, 1947-January 10, 1948	40.00
Bureau of Social Hygiene, Department of Health, 125 Worth St., New York At: Central Clinic	Practical Course in Diagnosis, Treatment and Control of Venereal Diseases	1 morning a week every 2 weeks	None
	Seminar in Diagnosis and Treatment of Venereal Disease (Lectures)	14 sessions, Fall and Winter 1947-1948	None
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32	Venereal and Skin Diseases	6 days, full time, December 1-6, 1947	30.00

1. Special contract to War Department.
2. Specialists only.
3. Stipends up to a maximum of $250.00 per month are available if certain qualifications can be met.
4. Half fee to physicians in service.
5. Followed by 12 months in hospital administrative internship.
6. Training given in various institutions throughout country. Applicant must make his own arrangement with institution.
7. Stipend paid on per diem basis.
8. In each teaching district—covering the state in 2 years.
9. Pre-requisite—Course 730.
10. Evening seminars to be announced during course.
11. Fellows and Jr. candidates.
12. Including dinners and luncheons.
13. Write for schedule to: Committee on Graduate Education, 230 State St., Harrisburg, Pa.
14. Includes meals.
15. Free to physicians on active duty at Cook County Psychopathic Hospital.
16. Full-time employees of the Illinois Department of Public Welfare pay no fee.
17. Restricted to physician candidates of the Topeka Institute for Psychoanalysis.
18. Candidates in training only.
19. $5.00 per session paid to physician in training by State Department of Health.
20. Or equivalent if taken on part-time basis.
21. Especially for candidates for American Board of Surgery.
22. No extra charge for longer stay.
23. Stipend (including travel) and tuition fee (when there is such) paid for by the department.
24. Paid by State Health Dept., also stipend paid during training period.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Revocation of License for Unlawful Advertising.—This was a proceeding to revoke the license of the defendant to practice dentistry. From a judgment of the district court setting aside a revocation order entered by the state board of dental examiners, the board appealed to the Supreme Court of Kansas.

Early in April 1941 the defendant, then practicing dentistry in Kansas City, began running advertisements in the Kansas City *Kansan* and the *Shopper*, newspapers in general circulation in Kansas City, of a kind which violated the provisions of the dental practice act, the Code of Ethics of the American Dental Association and the rules of the board of dental examiners. The secretary of the board accordingly wrote the defendant, calling attention to that fact. The defendant replied, expressing his desire to conduct his business in an ethical way and asking for specific information as to in what way he was not doing so. Following receipt of this letter, the attorney for the board called on the defendant and made a full explanation to him of the objectionable nature of his advertisements, furnished him copies of the Code of Ethics and the board's rules and referred him to the pertinent statute. Later the board's attorney also wrote to the defendant, referred to the interview and again detailed the matters which had been discussed. The defendant referred this letter to a lawyer, who requested and received an interview with the attorney for the board. At the interview the entire matter was again gone over, with the ultimate result that defendant's attorney took the position that, while what the defendant was doing was contrary to the rules of the board, the board had no authority to make such rules and hence defendant was not engaged in unethical or dishonorable conduct. A complaint was filed before the board on Nov. 15, 1941 and a copy of it sent to the defendant by registered mail. At the date set for a hearing, the board heard the arguments of all the parties and concluded that the complaint should be further investigated. [At this point the defendant appealed to the Supreme Court on the right of the board to conduct the hearing on the complaint. The defendant lost (*Bohl* v. *Teall*, 155 Kan. 505, 126 P (2d) 216.)] The matter was set for hearing on Aug. 10, 1942. At that time the defendant made an offer to cease the objectionable advertising if the complaint was dismissed. A hearing respecting the good faith of the defendant in making that offer was conducted, and the board took the matter under advisement pending the final hearing, at which the board went fully into the complaint and the evidence and entered an order revoking the defendant's license. [At this point the defendant obtained an injunction restraining the board from enforcing its revocation order. Again the matter was taken to the Supreme Court (*Bohl* v. *Teal*, 157 Kan. 239, 139 P (2d) 418), which held that the defendant's proper remedy was by appeal of the board's order and not by an independent action to restrain the board from enforcing its order.]

From our examination of the record, said the Supreme Court, we find nothing which justified the trial court in finding that the order of the board was unreasonable, arbitrary, oppressive and illegal. The board gave the defendant as fair treatment and consideration as any one could expect. The testimony before the board justified its findings, and the Dental Practice Act authorized the board to conduct such a hearing and to make the order revoking the license if the evidence disclosed that it should be done. Continuing, the Supreme Court pointed out that a member of a profession which has high ethical standards in order that its members may have the high standing in the community which their education and training justify, and which standards are beneficial to the health and welfare of those whom they serve, should conform to them. Apparently, said the court, the defendant violated these standards, and when his attention was called to the matter he professed ignorance. With reasonable promptness he was informed in a personal interview and in writing by the board's attorney. Defendant blocked a full inquiry, the court continued, but enough did get into the record to tend to show conduct on the part of the defendant which the board might regard as being professionally dishonorable. It is not for this court, nor was it for the trial court, to pass upon the evidence before the board as to whether or not it established grounds for revoking the defendant's license. The court concluded that it had no authority to substitute its judgment for that of the board.

The court also held that legal questions relating to procedure of this kind are well established by former decisions of the Kansas Supreme Court. Council for the defendant cited *Capland* v. *Board of Dental Examiners*, a prior Kansas case, as controlling. But in that case, the Supreme Court pointed out, the board had not made the rules authorized by statute. In this case the rules had been adopted by the board prior to any of the objectionable conduct of the defendant, a fact of which he either knew or was promptly informed before any proceedings were started. On behalf of defendant, it was also argued that because some general definitions of dishonorable conduct were stated in the Capland case the board had no authority to embody in its rules a definition of dishonorable conduct. The point is not well taken, said the Supreme Court. The general definitions of dishonorable conduct quoted in the opinion did not preclude the board from considering its own profession and making rules defining dishonorable conduct as being that which was opposed to the long standing Codes of Ethics of the profession.

Accordingly, the judgment of the trial court was reversed with directions to affirm the order of the board revoking the defendant's license to practice dentistry in Kansas.—*State Board of Dental Examiners v. Bohl, 174 P. (2d) 998 (Kansas, 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL June 14, page 635.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* September. *Part III.* Various centers, June. Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Part II. *Oral.* Cleveland, Oct. 5-11. Sec., Dr. P. M. Wood, 131 Riverside Dr., New York 24.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Part I. Oral.* Chicago, Oct. 24-26. Final date for filing application is Aug. 1. *Part II. Written.* Various centers, Sept. 15. Sec., Dr. G. M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May or June. Final date for filing application is Feb. 1. Sec., Dr. W. J. German, 310 Cedar St., New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, October 6-12. Sec., Dr. S. Judd Beach, 704 Congress St., Portland, Me.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Part II. Chicago, Jan. 22-23. Final date for filing applications is Sept. 15, 1947. Sec., Col. F. M. McKeever, 1136 W. Sixth St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 24-25. Final date for filing application is Sept. 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kingshighway, St. Louis 10.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in April and November of each year in the home town of applicants. Applications should be sent to Sec., Dr. Louis T. Byars, 508 N. Grand Blvd., St. Louis.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Sept. 15. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Boston, Nov. 26-30. Final date for filing application is Aug. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Avenue, S. W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Examination. Part I. Written.* Various centers, Oct. 29. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, February. Final date for filing application is Nov. 1. Sec., Dr. Harry Culver, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Practitioner, Philadelphia

1:343-400 (March) 1947

Prematurity from the Viewpoint of Obstetrician. N. J. Eastman.—p. 343.
Role of Vitamin Deficiencies in Neuropsychiatric Diseases. N. Q. Brill.—p. 353.
Blood Grouping Tests in Disputed Paternity Cases. I. Davidsohn.—p. 357.
Chemical Tests for Alcoholic Intoxication. C. Muehlberger.—p. 360.
Legal Problems Regarding Blood Grouping Tests in Paternity Cases and Scientific Tests for Alcoholic Intoxication. F. E. Inbau.—p. 363.
Lymphogranuloma Venereum. J. Parks and C. K. Fraser.—p. 371.
Abdominal Auscultation. P. Thorek.—p. 375.
Treatment of Migraines. H. T. Engelhardt and V. J. Derbes.—p. 392.

Archives of Dermatology and Syphilology, Chicago

55:309-432 (March) 1947

Clinical Use of New Antihistaminic Compound (Pyribenzamine) in Certain Cutaneous Disorders. E. D. Osborne, J. W. Jordon and N. G. Rausch.—p. 309.
Dermatologic Problems in Staging Area Station Hospital. S. L. Hanfling and A. A. Goldbloom.—p. 322.
Kaposi's Varicelliform Eruption: F. W. Lynch and R. J. Steves.—p. 327.
Dermatophytosis of Face Caused by Trichophyton Camerounense. E. Bernhardt.—p. 337.
Granuloma Inguinale Involving Buttock and Lymph Node: Cultivation of Donovon Body in Embryonic Yolk. D. B. Jennison, E. B. Helwig and J. H. Milstone.—p. 342.
*Acne Vulgaris Treated with Vitamin A. F. W. Lynch and C. C. Cook.—p. 355.
Leishmaniasis Verrucosa of Face. O. G. Costa.—p. 358.
Cutaneous Diphtheria and Tropical Ulcers. E. Denhoff and M. H. Kolodny.—p. 360.
Epidermolysis Bullosa of the Newborn. J. H. Lamb and B. Halpert.—p. 369.
Basal Cell Epithelioma in Psoriatic Patch. A. G. Franks and J. L. Barner.—p. 375.
Treatment of Mycotic Infections by Inhibiting Respiration of Dermatophytes. F. A. Dolce and W. J. Nickerson.—p. 379.
Reactions in Treatment of Syphilis with Penicillin. S. Fromer.—p. 385.
*Undecylenic and Propionic Acids in Prevention and Treatment of Dermatophytosis. M. B. Sulzberger and A. Kanof.—p. 391.

Vitamin A in Acne Vulgaris.—Lynch and Cook studied the effects of vitamin A given orally in daily doses of 100,000 units to a group of university students with acne. The patients received no advice as to diet or hygiene, and no other treatment was given. There were 45 patients to whom vitamin A was given for a sufficient length of time (four or five months) to permit evaluation. A comparison of the results of vitamin A treatment with those obtained with nicotinic acid or other treatments reveals that vitamin A does not produce remarkable improvement in acne.

Undecylenic and Propionic Acids in Dermatophytosis.—Sulzberger and Kanof summarize the results of experiments performed under the direction of the Research Division of the Bureau of Medicine and Surgery of the United States Navy. The object of the experiments was to ascertain the efficacy of certain fatty acids and their salts in the prophylaxis and treatment of dermatophytosis. Nine agents were compared and are listed in approximately descending order of efficiency: 1. Undecylenic acid-undecylenate powder. 2. Diodoquin 5 per cent in talcum powder. 3. Vioform 1 to 3 per cent in talcum powder. 4. Calcium-zinc propionate powder. 5. Sodium propionate powder. 6. Foot powder U. S. N. 7. Boric acid-salicylic acid powder. 8. Talcum powder. 9. Thiourea 5 per cent in talcum powder. Undecylenic acid-undecylenate powder was slightly more effective than the boric acid-salicylic acid powder. Approximately one fourth of all the men studied and examined had clinical evidence of active fungous infection of the feet.

Canadian Medical Association Journal, Montreal

56:249-360 (March) 1947

*Heart Catheterization in Investigation of Congenital Heart Disease. A. L. Johnson, D. G. Wollin and Janice B. Ross.—p. 249.
Some Observations on Nasal Cilia. G. E. Tremble.—p. 255.
New Method of Ureterointestinal Anastomosis Prior to Total Cystectomy for Carcinoma of Bladder. R. H. Flocks.—p. 259.
Importance of Blood Changes in Coronary Occlusion. W. M. Cameron, J. H. B. Hilton, S. R. Townsend and E. S. Mills.—p. 263.
Ectopic Pregnancy as Diagnostic Probem: Study of 100 Cases. H. B. Atlee.—p. 268.
Sudden Death. W. J. Deadman.—p. 273.
Anesthesia for Plastic Surgery. R. A. Gordon.—p. 277.
Problem of Muscle Relaxation in Surgery. H. R. Griffith.—p. 281.
Phlebothrombosis and Its Treatment. E. S. Mills.—p. 284.
Anesthesia in Thoracic Surgery. H. J. Shields.—p. 287.
Bone Lesions Encountered During Infancy. A. E. Childe.—p. 292.
Penicillin in Treatment of Sinusitis. R. Scott-Moncrieff.—p. 296.
Treatment of Mastoiditis in Children. L. H. Leeson.—p. 298.
Psychological Component. B. I. Lewis.—p. 303.
Vertigo. T. J. Haughton.—p. 308.
Occupational Therapy in Rheumatoid Arthritis. H. P. Wright.—p. 313.

Heart Catheterization in Congenital Heart Disease.—The report by Johnson and his associates is based on the study of 17 children with congenital heart disease in which this approach has been employed. The patients ranged in age from 19 months to 16 years. Of the 17 patients studied, 9 were considered to have interventricular septal defects in view of the information provided by catheterization. The authors regard the method of heart catheterization as a most useful adjunct in the investigation of congenital heart disease.

Journal of International College of Surgeons, Chicago

10:1-134 (Jan.-Feb.) 1947

Impending Death Under Anesthesia. H. Bailey.—p. 1.
Surgical Concept in Hyperthyroidism. C. G. Heyd.—p. 11.
Reconditioning of Spinal Cord Injuries. W. McK. Craig and J. S. Barr.—p. 18.
Dermoplasty of War Wounds of Lower Extremity. J. F. Pick.—p. 28.
Anatomic and Surgical Considerations of Phrenic and Accessory Phrenic Nerves. M. J. Rajanna.—p. 42.
Prostheses for Nose. A. M. Brown.—p. 53.
Operative Technic for External and Internal Strabismus. J. P. Rigg.—p. 63.
Ureteroureterostomy: Anastomosis of Old Stump of Right Ureter with Injured Left Ureter. N. I. Slutsky.—p. 72.
Goiter Due to Iodine Deficiency in Childhood. E. S. Loup B.—p. 110.
Controlled Spinal Anesthesia. J. E. Cavelier.—p. 118.
Consideration on 10,000 Anesthesias Performed in the Workers' Hospital in Lima. P. B. Carlin and J. Fuentes.—p. 120.
New Technic and Its Advantages for Extraction of Fetal Head in Segmental Cesarean Section. M. Urpi Rodriguez.—p. 126.
Should Subtotal Be Preferred to Total Hysterectomy in Nonmalignant Lesions? E. Bello.—p. 129.

Medical Annals of District of Columbia, Washington

16:119-172 (March) 1947

*Nondysenteric Amebiasis: General Considerations and Possible Relationship to Rheumatoid Arthritis. M. W. Perry.—p. 119.
Late Manifestations of Tropical Diseases. O. J. Brown.—p. 125.
National Hotel Epidemic of 1857. H. J. Forrest.—p. 132.
Glomus Tumor. W. H. Gerwig Jr.—p. 135.

Nondysenteric Amebiasis.—Perry thinks that amebiasis is generally thought of only in terms of amebic dysentery. He stresses the importance of the carrier state, in which the lesions are smaller and often microscopic. The organisms tend to grow in the cecum and the terminal ileum. The appendix is frequently involved and is often removed for so-called chronic appendicitis. No patient with so-called chronic appendicitis should have an appendectomy without first having adequate studies of the stools for amebas. Patients with nondysenteric amebiasis have a tender cecal area and a somewhat enlarged and palpable liver. There is need for a careful study of the feces whenever these signs are detected. The author has detected amebas in persons with rheumatoid arthritis and thinks that the lesions produced in the right colon by the ameba in the carrier or nondysenteric state are capable of providing a port of entry for pathogenic bacteria. He cites a case which illustrates the role amebiasis may play in rheumatic difficulties and how treatment of the amebiasis will counteract the rheumatic symptoms.

Nebraska State Medical Journal, Lincoln

32:89-132 (March) 1947

Purpuric States. C. A. Doan.—p. 93.
Histoplasmosis Case Report. F. M. Conlin and C. R. Hankins.—p. 101.
Local Anesthesia in Cesarean Section. L. S. McGoogan.—p. 104.
Psychiatric Aspects of Pain in Neck. R. H. Young.—p. 107.
Headaches from Otolaryngologic Viewpoint: Origin and Mechanism. F. M. Watke.—p. 109.
Pitfalls in Serologic Diagnosis of Syphilis. J. P. Tollman.—p. 114.
Atresia or Stenosis of Nares. W. L. Shearer.—p. 116.

32:133-176 (April) 1947

Blood Substitutes and Parenteral Fluids: Derivation and Their Relative Values. C. M. Wilhelmj.—p. 136.
Use and Abuse of Blood Substitutes and Parenteral Fluids in General Surgery. C. W. McLaughlin Jr.—p. 138.
Blood Substitutes and Parenteral Fluids in Gynecology and Obstetrics. J. P. Redgwick.—p. 141.
Blood Substitutes and Parenteral Fluids. F. S. Clark.—p. 144.
Blood Substitutes and Parenteral Fluids: Use and Abuse in Internal Medicine. C. E. Thompson.—p. 146.

New York State Journal of Medicine, New York

47:433-528 (March 1) 1947

*Operation of Portacaval Anastomosis: Indications, Report of Cases. A. H. Blakemore.—p. 479.
Evaluation of Transdiaphragmatic Approach for Upper Abdominal Surgery. J. D. Stewart.—p. 486.
Prevention of Complications Following Surgery on Urinary Tract. G. E. Slotkin.—p. 490.
*Consideration of Effect of Androgen Control Treatment of Carcinoma of Prostate. C. C. Herger and H. R. Sauer.—p. 494.

47:529-656 (March 15) 1947

Pulmonary Tuberculosis, Early and Differential Diagnosis. R. J. Erickson.—p. 575.
Incidence of Pathologically Significant Tuberculosis in Routine Necropsies in Private and Public General Hospitals: Comparison of Two Periods: 1916-1920 and 1940-1945. E. M. Medlar.—p. 582.
Use of Bronchoscope in Diseases of Chest. J. D. Kernan.—p. 588.
Surgery in Diseases of Chest. H. C. Maier.—p. 592.
Maternal Mortality in Brooklyn for 1945. C. A. Gordon.—p. 595.
Clinical Use of Penicillin in Otolaryngology. J. W. Fowlkes.—p. 600.
Management of Renal Lithiasis. C. C. Higgins.—p. 604.
Parenteral Nitrogen Therapy in Surgical Nutrition Including the Use of a Mixture of Pure Amino Acids. S. C. Werner.—p. 607.

Portacaval Anastomosis.—Blakemore thinks that the principle of establishing portacaval shunts to effect a reduction of blood pressure in the portal system in cases of portal hypertension is a sound one, but in the first operations of this kind the anastomosis often became occluded by a thrombus. The difficulty of accurate placement of each stitch so necessary for a perfect intima to intima coaptation of the vein walls induced the author and Whipple to try a nonsuture technic employing vitallium tubes in the establishment of portacaval shunts. The nonsuture method of blood vessel anastomosis affords a broad intima to intima coaptation of the vessel walls without an intervening foreign body suture. The author illustrates the technic and discusses the indications for the anastomosis. The operation has been performed on 17 patients. In this group there were two postoperative deaths. In 6 patients the site of the portal obstruction was extrahepatic. Ten of the 11 remaining patients had portal cirrhosis. Sufficient time has elapsed since operation to have some follow-up significance in 8 cases of cirrhosis. In 1 of these with esophageal varices but no ascites there was a rise in total proteins and albumin following operation. In 2 other cases there was a slight rise in total proteins and albumin following operation, whereas in the remaining 5 cases there was a slight fall of these. Ascites disappeared following establishment of the portacaval shunts in spite of lowered proteins in 3 cases; this emphasizes the role of portal hypertension as a causative factor.

Androgen Control in Carcinoma of Prostate.—Herger and Sauer review the results obtained with endocrine therapy in 130 cases of prostatic cancer. They found that after initial benefit resurgent symptoms develop in the majority of the cases after variable periods of time. This indicates that endocrine therapy in its present form does not cure nor does it retard the disease indefinitely. Indiscriminate use of orchiectomy in patients with prostatic cancer is decried. Castration should be reserved for patients in whom immediate relief from pain is desired or patients in whom estrogen administration has lost its effectiveness. Estrogen administration given in cases of failures following castration is usually ineffective while failures occurring after exclusive estrogen therapy show fair response to subsequent castration. Androgen control therapy does not prevent formation of metastases in patients with apparently quiescent disease.

North Carolina Medical Journal, Winston-Salem

8:115-190 (March) 1947

Diagnosis and Management of Tinea Capitis. J. L. Callaway and N. F. Conant.—p. 116.
Management of Myocardial Infarction. C. Johnston.—p. 121.
Treatment of Congestive Heart Failure. E. S. Orgain.—p. 125.
Treatment of Cardiac Failure with Rice Diet: History of Patient with Myocardial Aneurysm. W. Kempner.—p. 128.
Basis for Treatment of Rheumatoid Arthritis. E. L. Persons.—p. 131.
Treatment of Psychogenic Headaches. R. L. Craig.—p. 134.
Recognition and Management of Subarachnoid Hemorrhage. F. H. Hesser.—p. 138.
Treatment of Chronic Convulsive Disorders. R. W. Graves.—p. 141.
Modern Concepts of Treatment of Peptic Ulcer. J. M. Ruffin.—p. 143.
Treatment of Anemia. O. C. Hansen-Pruss.—p. 146.
Treatment of Diabetic Acidosis. W. M. Nicholson.—p. 150.
Prescribing of Diets in Treatment of Diabetes Mellitus. R. W. Rundles.—p. 152.
Some Common Forms of Overtreatment. M. Dick.—p. 157.
Significance of Hypersensitivity in Diagnostic Tests and in Therapy of Infectious Diseases. D. T. Smith and D. S. Martin.—p. 160.
Desensitization in Treatment of Asthma. E. G. Goodman.—p. 162.
Penicillin Aerosol Therapy. E. E. Menefee Jr. and D. H. Fogel.—p. 165.
New Horizons in Drug Therapy. J. P. Hendrix.—p. 169.

Oklahoma State Medical Assn. Jour., Oklahoma City

40:73-116 (March) 1947

Diagnosis and Treatment of Cardiac Emergencies. F. R. Park.—p. 75.
Sulfonamide Anuria. D. W. Branham.—p. 81.
*Brucellosis in Children. G. R. Russell.—p. 82.
Gastric Resection for Carcinoma of Stomach: Kronlein Technic. A. B. Carney—p. 88.

Brucellosis in Children.—Russell reports observations on 141 children with tissue sensitivity to Brucella vaccine as manifested by a positive skin test. The search was suggested during the past two years by the letting down of the bars to raw dairy products due to rationing, and by the presentation by the parents of the occasional child with symptoms similar to their own and diagnosed as probable ambulant forms of brucellosis. In 123 of the 141 there was a definite history of fever, usually of the remittent type. Vague pains of the skeletal system, chiefly leg ache and backache, were present in 50 children, with headaches in 13. Forty-two children gave a history of vague gastrointestinal symptoms. Eighty-eight had a history of using raw or unpasteurized dairy products, including milk, cream and country butter. Associated conditions, although not necessarily due to brucellosis, may be connected with it when the protean character of its manifestations is taken into consideration. There were ocular and pulmonary manifestations, lymphadenopathy, skin lesions, spondylitis, joint manifestations and alopecia. Vaccine therapy was tried in children who showed no spontaneous improvement after one or two months. Great improvement was effected with vaccine in 9 patients, moderate improvement in 11, slight improvement in 8 and no improvement in 2. The blood sedimentation level has been found to be a valuable aid in following the activity of brucellosis infection. Russell suggests investigation of the use of Brucella prophylactic vaccine, perhaps as a combination with typhoid and paratyphoid, as tried by Kolmer.

Psychiatry, Washington, D. C.

10:1-120 (Feb.) 1947

Memory and Childhood Amnesia. E. G. Schachtel.—p. 1.
Notes on "The Iceman Cometh." W. V. Silverberg.—p. 27.
Study of Psychopathic Personality in Guatemala. M. F. Molina.—p. 31.
Cultural Dynamics of Sex: Study in Culture and Personality. J. J. Honigmann.—p. 37.
Witches and Psychiatrists. D. Senter.—p. 49.
Concept of Culture and Psychosomatic Approach. Margaret Mead.—p. 57.
Medical Philosophy from Viewpoint of Psychiatrist. W. A. White.—p. 77.

Quarterly J. of Studies on Alcohol, New Haven, Conn.

7:499-638 (March) 1947

*Effect of B Complex Vitamins on Voluntary Consumption of Alcohol by Rats. R. A. Brady and W. W. Westerfeld.—p. 499.
*Insulin Subshock as Detoxicant in Acute Alcoholic Intoxication. J. Thimann and P. Peltason.—p. 506.
Imprisoned Abnormal Drinkers: Application of Bowman-Jellinek Classification Schedule to Institutional Sample: Part I. Review and Analysis of Data. M. Floch.—p. 518.
Etiology of Alcoholism: Working Hypothesis Involving Interplay of Hereditary and Environmental Factors. R. J. Williams.—p. 567.
Contribution of Alcohol to Accident Fatalities in Hennepin County During a One Year Period. G. Joss.—p. 588.
Opinion Poll on Reactions to "The Lost Weekend."—p. 596.

B Vitamins and Voluntary Alcohol Consumption.—Brady and Westerfeld found that rats maintained with a diet containing all the known members of the vitamin B complex plus Wilson's liver fraction L did not consume alcohol in autoselection experiments. Rats consumed relatively large amounts of alcohol voluntarily when fed a diet deficient in members of the vitamin B complex. Once the alcohol intake became elevated on a deficient diet it could not be restored permanently to low levels by feeding a "complete" diet; inclusion of missing factors in the diet usually brought about a temporary decrease in alcohol consumption.

Insulin Subshock as Detoxicant in Alcoholic Intoxication.—Insulin ranging from small amounts to subshock dosages was administered by Thimann and Peltason in the therapy of uncomplicated acute alcoholic intoxication and acute alcoholic psychoses to 120 patients. In the alcoholic psychoses 10 to 20 units of insulin given simultaneously with dextrose proved the method of choice. Uncomplicated acute alcoholic intoxication responded best to subshock doses of insulin. The duration of the sobering up process was reduced in most cases from the two to four days required under previous technic to one day and often to only a few hours. Patients prefer this technic to the conventional method of substituting paralydehyde or chloral for alcohol. The staff was of the impression that in 20 per cent of these 120 patients the insulin method had no advantage over the conventional method. In the remaining 80 per cent the insulin technic proved to be superior.

Surgery, Gynecology and Obstetrics, Chicago

84:385-512 (April) 1947

*Ligation of Inferior Vena Cava in Thromboembolism: Report of 36 Cases. B. R. Thebaut and C. S. Ward.—p. 385.
*Total Gastrectomy: Report of 89 Cases. Frances H. Smith.—p. 402.
Complete Fecal Diversion Achieved by Simple Loop Colostomy. O. H. Wangensteen.—p. 409.
*Hyperfunctioning Simple Adenoma of Thyroid. O. Cope, R. W. Rawson and Janet W. McArthur.—p. 415.
Resection of Common Hepatic Duct for Papillary Adenocarcinoma. J. P. Barnes and L. L. Zarr.—p. 427.
*Massive Iliac Bone Grafts in Treatment of Ununited Fractures and Large Defects of Long Bones; The Combined Bone Graft-Metallic Plate Technic: An Analysis of 91 Operations in 85 Patients. T. Horwitz and R. G. Lambert.—p. 435.
Coagulation Thrombi in Segments of Artery and Vein in Dogs and Genesis of Thromboembolism. A. L. Copley and P. L. Stefko.—p. 451.
Transplantation of Spinal Cord: Problem of Kyphoscoliosis with Cord Signs. O. R. Hyndman.—p. 460.
Reconstructive Surgery of Chest Wall. K. L. Pickrell and J. P. Collins.—p. 465.
Protective Action of Sulfanilamide on Experimental Chloroform Hepatitis. C. A. Tanturi, J. A. Loncharich and R. F. Banfi.—p. 477.
Gastric Carcinoma: Comparative Review of Origin, Diagnosis and End Results in 583 Patients. R. H. Abrahamson and J. W. Hinton.—p. 481.
Physiologic Effects of Curare and Its Use as Adjunct to Anesthesia. Phyllis Harroun, F. E. Beckert and C. W. Fisher.—p. 491.
Preinfusion—Study in Prevention of Hemorrhagic Shock. H. Necheles, S. O. Levinson, Martha Janota and F. Arimoto.—p. 499.

Ligation of the Inferior Vena Cava in Thromboembolism.—Thebaut and Ward emphasize the importance of thrombosis in the deep veins of the lower extremities and discuss its surgical management once pulmonary infarction has occurred. In 34 of 36 patients ligation of the inferior vena cava was performed and 2 patients died on the operating table before ligation could be accomplished. There was no recurrence of pulmonary embolism in the patients operated on. The authors recommend ligation of the inferior vena cava as the treatment of choice in patients with thromboembolism.

Total Gastrectomy.—Smith reviews observations in 89 total gastrectomies performed at the Lahey Clinic since 1927. All patients gave x-ray evidence of a lesion involving the stomach. The postoperative mortality for the entire group was 29.1 per cent. The postoperative mortality during the last three years and nine months of the study, during which 43 operations were done, was 16.3 per cent. Twelve patients have survived the operation for three years or more. Calculation of life expectancy of patients surviving the operation shows that 50 per cent will survive twelve months or more. It is impossible to overemphasize the importance of nutritional care in the postoperative period of patients subjected to total gastrectomy. In order to put the gastrointestinal tract as completely at rest as possible and so avoid stress at the suture lines, nothing is given by mouth for at least three days. During this period blood is transfused as indicated. With the advent of protein hydrolysates for parenteral administration there has become available a valuable addition to the postoperative nutritional care of patients undergoing gastrointestinal surgery. The author advocates the administration of one of the available digests in amounts equivalent to at least 50 to 100 Gm. of protein daily until the patient is able to take adequate protein orally.

Hyperfunctioning Single Adenoma of Thyroid.—Cope and his associates say that during the past ten years 10 patients have been cared for in the Thyroid Clinic at the Massachusetts General Hospital whose thyroid glands fulfil the anatomic and biologic criteria of a hyperfunctioning single adenoma of the thyroid. Proof of the existence of a single adenoma depends on the absence of other diseased thyroid tissue, the presence of gross anatomic atrophy and of physiologic inactivity of the uninvolved thyroid tissue, and relief of the excessive function on its removal. The atrophy of the uninvolved thyroid tissue can be suspected on physical examination but should always be recognized at operation and undue resection of it avoided. The physiologic activity of the adenoma and uninvolved thyroid gland has been compared by the ability of explanted thyroid tissue to inactivate thyroid stimulating hormone and by the avidity of the thyroid for tracer doses of radioactive iodine. The absorption of tracer doses of radioactive iodine by single adenomas not associated with hyperthyroidism suggests that the secretory activity of adenomatous tissue varies and that the presence of thyrotoxicosis in a patient depends on the degree of activity and size of the adenoma. The activity of the accompanying uninvolved tissue varies inversely and is depressed when that of the adenomatous approaches an excessive amount.

Massive Iliac Bone Grafts and Combined Bone Graft-Metallic Plate Technic.—Experience with 85 patients on whom 91 bone graft operations were performed has indicated to Horwitz and Lambert the need for variations in technic. They discuss experiences with iliac bone as massive bone grafts; conditions in which cortical bone is preferable to iliac bone as graft material; the place for plate fixation in combination with bone grafts; fixation by multiple screws in oblique fractures; modifications and variations in the technic of the combined graft-plate method and of bone grafting without plate fixation; factors involved in failure of the graft operation incidence and factors involved in the occurrence of postoperative infection, and the fate of iliac grafts in the presence of infection. Resorption of iliac grafts has occurred as late as four or five months postoperatively, owing possibly to incomplete metaplasia and structural weakness of the graft and the result of stress and strain on an inadequately protected graft. This also occurs with cortical grafts and is one of the dominant reasons for the use of internal metallic fixation in conjunction with grafting procedures. Cortical bone must be employed, for example, when grafts must be excessively long and when an absolutely straight, rigid segment of bone is required. To assure absolutely rigid protection during graft incorporation, especially when large defects are being bridged, it is recommended that the plate-graft technic be employed. Failure of bone graft operations with recurrence of nonunion, excluding cases associated with postoperative infections, has been due to such errors in technic as failure to use a plate when indicated and failure to use a plate of adequate length. Postoperative infection does not mean failure of iliac graft incorporation, especially if the infection is mild and well controlled and removal of the metallic fixation can be deferred.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

59:85-124 (March) 1947

Experiences in a Skin Department of Prisoner of War Camp Hospital in Singapore, 1942-1945. L. Sefton.—p. 85.
Vitiligo in Brazil. O. G. Costa.—p. 104.
Recurrent Bullous Eruption of the Feet.—E. A. Cockayne.—p. 109.

British Medical Journal, London

1:325-366 (March 15) 1947

*The "Costoclavicular Syndrome." E. D. Telford and S. Mottershead.—p. 325.
Water and Salt Depletion. H. L. Marriott.—p. 328.
Swallowing of Foreign Bodies. W. L. Neustatter.—p. 332.
Swallowed Foreign Bodies: Cases Treated in a Military Hospital. G. St. J. Hallett.—p. 334.
Variation in Titer of Rh Antibody During Pregnancy. M. D. Hickey and E. de Valera.—p. 335.
Report on Case of Melioidosis from Siam. J. P. J. Paton, C. R. Peck and A. van de Schaaf.—p. 336.
Case of Melioidosis Presenting as an Abscess in the Neck. C. R. Peck and T. Zwanenburg.—p. 337.

Costoclavicular Syndrome.—Telford and Mottershead base their conclusions on findings at 120 operations undertaken for the relief of pressure on the neurovascular bundle of the arm; on examination of the effects of posture of the shoulder girdle on the radial pulse in 120 medical students, and on the evidence obtained by dissection of 30 bodies. No one mechanical cause can explain all cases. Damage by pressure of the clavicle cannot happen in pure depression of the shoulder but is a likely event in retraction and abduction if cervical rib or abnormal first rib is present. These cases will probably show whole plexus symptoms. The most common cause of symptoms is the hanging up of the plexus on a cervical rib or other mechanical obstacle. These cases are likely to show lowest trunk symptoms. The phenomenon of alteration in the radial pulse on movements of the shoulder is due to causes distal to the clavicle. It has nothing to do with the costoclavicular syndrome.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

54:1-136 (Feb.) 1947. **Partial Index**

*Endocrine Allergy: Clinical Reactions of Allergy to Endogenous Hormones and Their Treatment. B. Zondek and Y. M. Bromberg.—p. 1.
Use of Radiology in Predicting Difficult Labor. J. C. Moir.—p. 20.
Head Flexion in Forceps Technic. J. Baxter.—p. 34.
Preliminary Report on Pelvic Brim Index. O. S. Heyns.—p. 39.
Technic of the Lower Segment Cesarean Section. C. Uhma.—p. 65.
Fibroids in Pregnancy: Analysis of 122 Cases Treated in University College Hospital, London, from 1934 to 1945. E. W. C. Buckell.—p. 70.
Statistical Study on Effects of Exercises on Childbearing. Helen E. Rodway.—p. 77.
Timing of Endometrial Biopsy. Margaret Hadley-Jackson.—p. 86.
Coarctation of Aorta in Association with Pregnancy: Review of Literature with Description of Case. M. D. Barber and Doreen Daley.—p. 91.

Endocrine Allergy.—Zondek and Bromberg suggest for the treatment of endocrine allergy (1) desensitization by the subcutaneous injection of the hormonal allergen in gradually increasing doses, (2) desensitization by the "depot method" involving the implantation of hormone pellets, (3) desensitization by percutaneous treatment with hormone ointment and (4) elimination of the allergenic hormone from the body by the inhibition of the gonadotropic hypophysial function with large doses of estrogens or androgens. In 47 cases of endocrine allergy treated by specific desensitization complete recovery was obtained in 51 per cent, improvement in 28 per cent and negative results in 21 per cent. In 2 cases the allergenic hormone was eliminated by the inhibitory effect of high doses of testosterone on pituitary secretion.

Journal of Tropical Medicine and Hygiene, London

50:41-60 (March) 1947

Subtertian Malaria in White Troops in West Africa: A Review of 300 Cases. T. C. Studdert.—p. 44.
Maintenance of Anopheles Quadrimaculatus in the Laboratory. R. Hunt and Pauline Davey.—p. 53.

Medical Journal of Australia, Sydney

1:225-256 (Feb. 22) 1947. **Partial Index**

Some Rules for Employment of Local Analgesia in Treatment of Somatic Pain. M. Kelly.—p. 235.
Heterospecific Pregnancy: III. The Rh Factor and Repeated Miscarriages. P. M. de Burgh, Ruth A. Sanger and R. J. Walsh.—p. 239.
Thiamine and Riboflavin Content of Some Commercial Vegetable and Yeast Extracts. Catherine E. Francis.—p. 239.

1:257-288 (March 1) 1947

Asiatic Schistosomiasis: Outbreak in Royal Australian Air Force. W. P. H. Dakin.—p. 257.
Leon Daudet: Extracts from His Memoirs Dealing with French Medicine in Eighties and Nineties. G. H. Hogg.—p. 265.
Intracranial Damage in Newly Born. T. Y. Nelson.—p. 268.
Present Position of Allergy. D. M. B_2 Riley.—p. 270.

Wiener medizinische Wochenschrift, Vienna

97:93-108 (Feb. 22) 1947

Pathogenesis and Causal Treatment of Gastric Ulcer. R. Boller.—p. 93.
*Abdominal Amnion Puncture as Valuable Differential Diagnostic Aid. F. Hoff.—p. 96.
Diagnosis and Therapy of Peripheral Nerve Lesions. A. Rottmann.—p. 99.

Abdominal Amnion Puncture as Differential Diagnostic Aid.—The diagnostic amnion puncture, as used by Hoff, is based on the reasoning that in the presence of a total hydatidiform mole the entire uterus is filled with hydropically swollen chorionic villi and no amniotic fluid can be obtained by puncture of the uterine cavity. If amniotic fluid is aspirated, the unusually rapid enlargement of the uterus is not due to a vesicular mole. The author stresses that early diagnosis of cystic mole is difficult without the described method, because neither roentgenograms nor hormonal analyses are reliable before the typical vesicles are discharged. Since it is particularly difficult to differentiate a cystic mole from a hydramnion or a twin pregnancy the abdominal amnion puncture is advisable in doubtful cases. With proper regard for contraindications, the method is comparatively simple, reliable and safe.

Nordisk Medicin, Gothenburg

33:1-58 (Jan. 3) 1947. **Partial Index**

Surgical and Bronchoscopic Treatment of Bronchial Asthma. J. L. Hansen and C. M. Smidt.—p. 4.

Hospitalstidende

Examinations of Milieu in Acute Anterior Poliomyelitis. E. Skinhøj.—p. 7.
Initial Disorder in Acute Anterior Poliomyelitis. E. Skinhøj.—p. 9.
Extent to Which Initial Symptoms in Acute Anterior Poliomyelitis Afford Information on Port of Entry of Virus in Human Organism. E. Skinhøj.—p. 12.

Hygiea

*Tumors in Pineal Body. R. Müller and G. Wohlfart.—p. 15.
Gastroscopy. L. Walk.—p. 21.
Plasma Cells in Bone Marrow in Hyperglobinemia. L. Söderhjelm.—p. 24.

Tumors in Pineal Body.—Müller and Wohlfart say that in the 47 cases of tumor of the pineal gland, in 28 men and 19 women, treated in the neurosurgical division of the Serafimer Hospital from 1929 to 1944, general symptoms of increased intracranial pressure appeared as a rule before local symptoms, while eye signs were absent in only 6 instances. Bilateral iridoplegia occurred in 37, reflex iridoplegia in 21, paralysis of vertical conjugated movements in 19, partial paralysis of the oculomotor nerve in 10, paralysis of convergence in 7, isolated paralysis of the trochlear nerve in 3 and paralysis of the abducens in 11. There were 13 cases of vertical nystagmus, 5 of horizontal-rotatory nystagmus and 2 of converging nystagmus. Puberty precox was not seen. Tinnitus, which may appear before the general symptoms of pressure, is an important if not especially common symptom not sufficiently noted in the literature. It has not been established that puberty precox is due to destruction of the pineal gland. The diagnosis of pinealoma or pineoblastoma was made or suspected in 29 cases; 1 case of neuroblastoma and 4 cases of intracranial teratoma were found. In the 41 patients operated on the primary mortality was 20, 11 patients died within four years after operation, the fate of 1 being unknown, 9 patients are living, 1 two and a half years after operation, 8 from six to twelve years after operation, and the 7 are able to work and are practically without symptoms.

Book Notices

The Human Frontier: A New Pathway for Science Toward a Better Understanding of Ourselves. By Roger J. Williams. Cloth. Price, $3. Pp. 314. Harcourt, Brace and Company, 383 Madison Ave., New York 17, 1946.

Williams is known to medicine primarily for his discovery of pantothenic acid and for his general contribution to our knowledge of the B vitamins. In this book he presents in language addressed definitely to the lay reader a philosophical consideration of some of the advances made by medical science. He has been especially concerned with the great variations in human physiology, a subject of the greatest importance since a determination of what is normal may be the first step in the proper consideration of the abnormal. The chapter on the endocrine glands and behavior reviews our knowledge of the glands and the manner in which they regulate our lives. He concludes from his study that standards of what may be regarded as a normal sex life do not exist and lead to the concept that it is futile to expect that each human being will behave according to a pattern that we ascribe to the average man. Following the discussion of physiology there is an extensive consideration of psychologic traits and the conclusion that every consideration leads us to think that psychologic phenomena have physiologic bases. There is a fundamental unity between one's physiology and one's psychology, a relationship that leads logically to a greater appreciation of psychosomatic medicine. The author proceeds to a consideration of man and society, to humanics and education, to a review of marriage clinics, then to clinical and to medical research. A final chapter deals with international relations. The book represents therefore essentially a series of essays on life based on scientific knowledge. He concludes that the scientific method is not applicable to the furtherance of art, music, literature or religion, but science can demonstrate its efficacy in modifying human essentials and can appraise the progress of man toward established spiritual goals.

Demonstrations of Physical Signs in Clinical Surgery. By Hamilton Bailey, F.R.C.S., F.I.C.S., Surgeon, Royal Northern Hospital, London. Tenth edition. Cloth. Price, $7. Pp. 375, with 573 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1946.

This gem of descriptive clinical surgery can boast without doubt that it is a familiar property to every medical student who reads English. While the text is clear and concise, its greatest value lies in the profuse and wonderful illustrations which it contains. The book is a bulwark of physical diagnosis and pointedly demonstrates how often the surgeon can arrive at a working diagnosis with the use of his five senses. Experience will create a sixth. There is little need of describing the content in detail; except for revisions of minor character and improvement and additions to the pictorial data, this edition is quite similar to previous editions. While the book is of the same size, there are many more illustrations than in former years. It is a delight to recommend the volume to every clinical clerk and intern.

Pointers for Parents. By Reinhard V. Lozier, M.D. Cloth. Price, $2. Pp. 141, with illustrations. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia 5, 1947.

As suggested by the title, this book consists of instructions to parents. While, in general, the attitude of the author is kindly and friendly toward parents and children, it seems entirely too much weighted on the side of inflexible instruction and affords too little of the information concerning the basis of this instruction. "Do's" and "don'ts" entirely dominate "whys" and "wherefores." The differences in human personality are so complex that it is confusing to attempt to make such hard and fast rules when dealing with children and their parents. It is confusing to a mother to be told that nothing should ever interfere with her daily program with the baby. Such regimentation is impossible and probably not desirable in any family. The author advocates a training routine which is entirely too advanced in comparison with the schedule now accepted by most students in the field. This again is confusing to children and mothers. One finds oneself confused when the author mentions research which implies that breast milk may carry the hereditary tendency to cancer to children. While this point of view has been held by some students of genetics, it is not an accepted fact and therefore should not be broadcast to laymen without considerable caution. This book adds nothing constructive to the already voluminous literature on child care. The author does not seem to have the tentative attitude so important in discussion of human relationships. The many lists of hard and fast rules will tend to lend confusion rather than clarity to solution of the problems of parents.

Traitement chirurgical du cancer du rectum. Par François d'Allaines, professeur agrégé à la Faculté de médecine, Paris. Avec la collaboration de A. Le Roy et Ch. Dubost. Paper. Price, 1,100 francs. Pp. 218, with 67 illustrations. Éditions médicales Flammarion, 22, rue de Vaugirard, Paris, 6e, 1946.

In this volume the author and his co-workers discuss the results of treatment of 263 patients suffering from carcinoma of the rectum. The study covers a period of ten years. The first chapter deals with anatomic considerations and is devoted chiefly to information gained from the writings of leading authorities on the subject of lymphatics. In chapter two the authors discuss diagnosis and various factors which they believe important in determining the operability of malignant lesions. A clear statement is provided regarding operability when preservation of the sphincters is desirable. The advantages and disadvantages of the various operative procedures especially of those employed to preserve the sphincteric mechanism of the anus and of palliative procedures are explained. In chapter three the technics of operative procedures are presented. In the authors' series 92 per cent of the patients were considered to have operable lesions, and a radical operation was performed in 233 cases (85 per cent). These authors prefer a one stage combined resection. In chapter four the importance of creating a temporary colonic stoma at the time of the operation is stressed. This stoma should be made in the left portion of the colon, but if this portion is not available it can be made in the transverse colon. In chapter five a comprehensive discussion is provided regarding preoperative and postoperative care. In chapter six the method of abdominosacral resection with the preservation of the anal sphincters employed by the authors is described. More than thirty fine illustrations are provided to clarify their presentation. In chapter seven more fine illustrations with legends show the Kraske procedure, Babcock's method of preserving the sphincter and the variations of technic which are made necessary owing to a short colon, sex of the patient and so forth. In chapter eight the technic of combined abdominoperineal resection is illustrated and described in the legends. In chapter nine complications such as fistulas, abscess formation, herniation and stenosis are described. In chapter ten the authors compare their results with those of other authors, and a final plea for early diagnosis concludes this splendid work.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Cumulative Supplement 1946. Medical Progress 1946. Editor in Chief: Rt. Hon. Lord Horder, G.C.V.O., M.D., B.Sc., Physician to the King. Boards. Cloth. Price, $12. Pp. 267; 498. Butterworth & Co., Ltd., 1367 Danforth Ave., Toronto 6; 4-5 Bell Yard, Temple Bar, London, W. C. 2, 1946.

This summary of medical progress in 1945 begins with a brief statement by Lord Horder on social medicine. The book then takes up the various medical specialties seriatim and by references to available periodical literature indicates the innumerable brief steps in medical progress that occur in any given year. Essentially the work may be considered a collection of abstracts with an occasional brief critical review.

Food Values of Portions Commonly Used. Compiled by Anna de Planter Bowes, M.A., and Charles F. Church, M.D., M.S. Sixth edition. Paper. Price, $1.60. Pp. 58, with 1 illustration. Anna dePlanter Bowes, 311 S. Juniper St., Philadelphia 7, 1946.

This compendium has passed through many editions and has come to be recognized as one of the most valuable guides available on the values of foods as commonly served. The authors avail themselves of tabulations made by the government and other agencies, so that the figures presented are quite up to date.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

RECURRENT MALARIA

To the Editor:—A man aged 40 had an acute attack of vivax malaria (discovered on a blood smear) following lobar pneumonia in January 1946. He had had malaria at the age of 15 without subsequent episodes and two attacks of sinusitis. He was not in military service. For the present attack he was given large doses of quinine, followed by atabrine 28 grains (2 Gm.) for one week and then 3 grains (0.2 Gm.) daily for three months. He has not felt well since January. In December 1946 he had symptoms of aching, chilliness and weakness. The smear was again positive for vivax malaria. The patient was given atabrine 12 grains (0.75 Gm.) a day. In four days he developed generalized severe pruritus, urinary frequency and burning, with frequent chilliness and leg aching. General physical examination is negative. Blood chemistry studies, blood counts and urine examination are negative. What treatment is suggested? Are any new drugs available?

M.D., Connecticut.

ANSWER.—Malarial recurrence after twenty-five years is not too infrequent, although most cases of this description are quartan malaria rather than vivax. It is unusual for vivax malaria to become reactivated after this length of time, even subsequent to shock or surgical operation. The refractoriness exhibited toward quinine and atabrine (quinacrine hydrochloride) could mean an infection acquired from a veteran from the Pacific. The large doses of both quinine and atabrine should have been adequate even if it was of this variety. Other kinds of infection should be excluded.

One of the new noncurative drugs, chloroquine, is now available, marketed as the diphosphate salt, under the name Aralen Diphosphate (Winthrop Chemical Company). The dosage is six tablets (0.25 Gm. each) the first day, then two tablets (0.25 Gm.) each of the two following days. Total dosage 2.5 Gm.

CORNEAL TRANSPLANT

To the Editor:—A patient is totally blind because of scar tissue from injury by a strong lye solution. The retina in this case is probably normal but he has been told that a transplanted cornea would soon become vascularized and therefore would not be successful. Is experimental work being done on global transplants? Who is doing this work?

M.D., Washington.

ANSWER.—Work is being done at the Wilmer Institute, Johns Hopkins University, Baltimore, and at the Eye Institute, Presbyterian Hospital Unit, Columbia University, New York, and at the Eye Bank for Sight Restoration, New York, on the use of x-rays in the treatment of vascularized scars of the cornea as preparation for a possible future corneal transplant. The transplantation of the entire eye is impossible because it is but an outgrowth of the brain, and the severance of the optic nerve produces irrevocable blindness. It is impossible to graft all the small blood vessels that are necessary for the nourishment of the interior of the eye.

VITAMIN A AND DARK ADAPTATION

To the Editor:—What is the current medical opinion concerning the efficacy of a daily dose of 50,000 units of vitamin A for promoting dark adaptation of eyes for fluoroscopy? Is a greater or lesser dosage necessary for the latter? What possible disadvantages are there to the taking of such large doses daily?

M.D., California.

ANSWER.—The consensus based on many reports is that the administration of vitamin A does not have any effect on the dark adaptation of persons who are not already deficient in this vitamin. Although many radiologists feel that daily ingestion of vitamin A improves their vision in fluoroscopy, there has been no experimental evidence advanced to substantiate this belief. In fact, unpublished reports have indicated that there is no improvement. However, if dark adaptation is subnormal the ingestion of vitamin A may increase the vision in fluoroscopy (Lerner, H. H.: *Am. J. Roentgenol.* **45**:753 [May] 1941).

The daily allowance of 5,000 international units of vitamin A for the healthy person was recommended by the National Research Council in 1945. If the radiologist has no vitamin A deficiency the daily doses of 50,000 units is excessive, although it is harmless.

HEXAETHYL TETRAPHOSPHATE

To the Editor:—Would you kindly advise me what toxic effects hexa-ethyl-tetra-phosphate (known as bladan in the German literature) has on man. I understand this substance is used as an insecticide.

M.D., California.

ANSWER.—This insecticide is manufactured by the Monsanto Chemical Company in St. Louis. After use on fruit trees the substance rapidly becomes innocuous because of hydrolysis in the presence of diluting water. For this reason it becomes unnecessary to wash fruits or vegetables prior to consumption—at least unnecessary so far as possible damage from this insecticide is concerned. So rapid is its disintegration that approximately four hours after admixing with water it loses its identity. Hexaethyl tetraphosphate ($C_{12}H_{30}O_{13}P_4$) is an amber liquid capable of corroding some metals and damaging some minerals such as some porcelains. Properly applied, it is not damaging to most vegetation but is destructive of most the forms of insect life unharmed by DDT. For animals it is highly toxic, but experience so far has not included man. It is presumed to be injurious to man. When applied to the skin of rats 0.2 cc. per kilogram of weight is fatal, and when administered orally to rats 0.005 cc. per kilogram is fatal. These animal results indicate that skin contact and inhalation by human beings should be avoided. Contaminated skin areas should be washed in water thoroughly and immediately. Respirators should be worn whenever there is the likelihood of inhalation or ingestion. Any exposed persons who develop headache or a sense of chest constriction should be removed promptly from further exposure until fully recovered. This information was obtained from the manufacturer, who has been unusually cooperative and is fully desirous that this substance be applied with due consideration for requisite safeguards.

HEMORRHAGIC STATE IN LEUKEMIA

To the Editor:—Please answer a question that has bothered me for a long time: "What is the mechanism of hemorrhagic disease in uremia?"

Merrill C. Beecher, M.D., Knoxville, Ill.

ANSWER.—There are several possibilities for a hemorrhagic state in uremia: necrosis of small arteries and arterioles in the nasal and gastrointestinal mucosa in persons with severe hypertension; increased capillary permeability on a toxic basis; low platelet count due to severe depression of bone marrow function; low prothrombin level in the blood due to dietary deficiency, impaired absorption of vitamin K or impaired liver function; vitamin C deficiency. The last three factors operate only rarely in the average case of uremia. Presumably the most likely reasons for uremic hemorrhages are toxic damage to capillaries, hypertensive arteriolar necrosis and gastrointestinal ulceration. The addition of congestive heart failure would aggravate the tendency to bleeding.

PREGNANCY AND MULTIPLE SCLEROSIS

To the Editor:—A primipara aged 23, who is eight months pregnant, is afflicted with multiple sclerosis. She can hardly walk at the present time. Abdominal reflexes are absent. What are the prospects for a normal delivery in such a case? Is a cesarean section indicated?

P. G. Berkhout, M.D., Paterson, N. J.

ANSWER.—Many patients with multiple sclerosis have had normal deliveries. When the patient has paraplegia and is unable to walk there is always the possibility that she might have difficulty in spontaneous delivery. Because the puerperium can precipitate or aggravate an attack of multiple sclerosis, cesarean section and sterilization are recommended.

DERMATITIS FROM COMMERCIAL ULTRAVIOLET LAMPS

To the Editor:—Have cases of dermatitis from "Pasturay" lighting fixtures been reported? This type of lighting is used in meat handling in some factories and purportedly emanates ultraviolet light for antiseptic purposes.

M.D., Ohio.

ANSWER.—It is possible to contract actinic dermatitis and conjunctivitis from excessive exposure to ultraviolet light used for antiseptic purposes. However, records of such cases are not common.

HARMFUL OCULAR EFFECTS OF PHOTOFLASH LAMPS

To the Editor:—Will any harmful effects on an infant's eyes result from the use of photoflash lamps when taking photographs? The child is 2 months old and the photoflash lamps are General Electric No. 5.

Ralph Burbridge Jr., M.D., Allentown, Pa.

ANSWER.—There are no known harmful effects.